ARCHITECTURE

in its

Development from the Origin to the present Time

Introduction to the History, Technics and Styles

By

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PREFACE.

The suggestion to prepare this work came to me from numerous students as well as instructors in higher and middle polytechnic schools, and from the inquiries received by me f from practising architects, artists and friends of art for a manual, that gives in the most comprehensive, clearest, concise and yet an exhaustivestatement in a certain sense, a thorough introduction to the course of the evolution of architecture, in reference to its history, its construction and its styles. I have heretofore vainly endeavored to find in so rich a literature for the history of art a work, that should entirely satisfy these requirements. A series of otherwise excellent publications, if they comprise the entire domain of architecture, by their great extent are entirely unsuitable for thorough study or for rapid information, or they are substantially limited to the principal architectural works in historical sequence, without more closely examining the roots of the architecture and the intimate psychological connection of its forms of expression with the culture and and intellectual life of the different peoples and periods. the most common manuals of the history of art, with all other advantages, are less favorably arranged for those seeking instruction in the evolution of architecture, since they chiefly treat of the entire domain of the formative arts, thus of architecture, sculpture and painting in the same volume, so that one is compelled to procurea frequently extensive work, which presents the desired material in but a relatively small portion of its contents. There may nearly always be recognized an inclination to place too much in view the archaeological element and beauty for itself alone, thereby considering the monuments from a point of view, which does not satisfy in full measure the interest of the architect. For in his conception architecture does not owe its importance alone to its archeaological or to its purely esthetic merit. The practical purpose to be served by a structure is determinable in all architecture, and to the architect is generally no less recognition due, if he has found a perfect architectural solution for the problem set him, than to the formative artist, who more freely employs the means for express-

ing beauty. Indeed, the creation of the former should also perhaps be yet more highly valued as an art creation, since mastery under the restrictions of higher requirements places it in a domain, that limits the creative artist by no restraints.

The present work then within the limits of a concisely conceived manual will represent architecture by itself in its p primitive connection with the general progress of civilization. It must thoroughly treat the grammar of form expression after the manner and ways, in which the different nations solved their architectural problems in accordance with local and contemporary opinions in art. But likewise for youths in architecture, by the development of the architectural treatment of ideas creating interiors, it must afford worthy evidence for the tasteful evolution of a feeling for space and the winning of an assured presentation of the interior.

The book uniformly comprises the entire domain of architecture. It considers the different periods, so far as they are of importance for their evolution in technics or form, and a are characteristic of the culture and intellectual life of t the nations in the respective ages. The selection, sifting and presentation of the material proceeds according to unified principles. Each chapter first presents the general bases afforded by the customs, culture and history of the nation. Then are examined the forces impelling to creative art, the architectural problems, the structural methods, the architectural treatment and decoration, so far as these were developed in the different periods. In conclusion are finally mentioned the most important monuments. Brief statements generally suffice for their description, since everything common to them in the form of interiors, architecture and decoration has already been thoroughly treated in the preceding.

The enumeration and consideration of the monuments do not follow architectural types, but in accordance with certain j justifiable assumptions, that in a work particularly treating architecture from the standpoint of its historical evolution, architectural creations are to be considered and arranged according to their locations. The interest in native arts also constantly increases in all classes of the cultured world.

The selection of the monuments frequently produces difficulties by almost unlimited abundance. With reference to the purpose of the manual and the restrictions imposed by its extent, not just those works, that are to be named first in magnitude and architectural expenditure, but others are taken, that must pass for being especially characteristic on account of their design or development.

Large space is allotted to the illustrations of the monuments, which indeed present the most important evidence for the course of life of the various nations, and whose reproduction is of great value for the use of the book, in order also to give thereby as complete a survey as possible. To the publisher is therefore due particular gratitude, and he has also met my wishes most completely in relation to the printing.

The addition of bibliographies must have enlarged the manual undesirably on account of the vast abundance of materials. Therefore I believed that these should be omitted. The sources of borrowed illustrations are always given. An ample index to places, names and things facilitates use as a comprehensive work on the character of the different periods, architectural styles, the leading masters and their principal w works.

For adwice contained in public or private criticism, relating to any corrections and extensions, I shall be grateful. But I must indeed permit myself to hope, that the work in its present form may afford a reliable guide to the study of architecture, both for polytechnic schools as well as for private instruction, and that by the consideration of the artistic l labors in past times and of the great deeds of the masters, it may afford to prictising architects and artists a strong impulse to original creation in the ideal world of our modern time.

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K. O. Hartmann.

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1. Beginnings of art and basis of its evolution.

The earliest undertakings of primitive races in the domain of architecture and of art in general doubtless arose from the impulse to preservation innate in all living creatures, from the contest for existence. The most compulsory needs, that appear in the common life of mankind, are to be regarded as the primary causes, which could arouse the thoughts and forces of the aborigines for their own protection and the elvation and amelioration of their lot. A great superiority over his fellow men led the first builder of a dwelling to the idea to create such in the lack of a suitable shelter. This supremacy further expressed itself in the ability to distinguish his own product above that of another, and to gi give it a higher value by more careful treatment and more suitable decoration. Even incomparably higher appeared that intellectual power, that finally placed him in a position to select symbols and figures for it, by which he might reproduce his mental perceptions by forms.

As such naturally at first only the very simplest representations could be considered, that by repeated attentive observation or by the peculiarity of their appearance had been impressed on the memory with unusual sharpness. And among these at first could be represented only the most striking characteristics in awkward, exaggerated and senseless prominence.

It was certain, that the first example of actual civilization found imitation among the inhabitants in the endeavor to appropriate to themselves the advantages and benefits thereby obtained. In this manner must what was attained by the first act have gradually become by continued imitation a common possession of those living together, so far as a certain similarity in intellectual traits and capacities existed among them. But thereby the result attempted by the first sculptor to secure in his possession a predominance over his fellow men, w was placed in question. He must again conceive a further advance, and from this mature the second artistic production by perfecting the first work and the invention of novelties, again winning an advance. Yet the new attainment did not remain in his sole possession; like the first, it found imitation

by those dwelling around him. By the continued transfer of the products to all men also cage gradually the need of further development, for novelty. But thereby was also introduced the estimation of all art.

In this advance of art must always stand in the foreground of artistic endeavor certain characteristics for its conception, and must first pass into representation, and indeed at first with faulty knowledge, with exaggerated prominence of marked peculiarities, but gradually with more accurate observation and increasing technical ability leading to ever more complete expression, until finally after long struggles was won the conception embodying the ideal type in perfected form. Thereby was attained the end of a definite period of evolution; beyond it improvement is no longer possible.

But since the endeavor for new creations also further remained effective, this no longer continued to be concentrated upon the characteristic meaning of the representations, which were already represented in an exhaustive manner; the attention must then be directed to less important matters, to subordinate and accidental things, with which the ideal type is equipped and in a certain sense is covered. There then appears a reaction in its characteristic appearance; the evolution of art itself moves in reference thereto in a descending line.

The normal progress of a tendency in culture and art here considered naturally could only pass into mature and complete development, when the necessary assumptions are provided for this, particularly uniformity in intellectual change, in the external conditions of life and the means for artistic representation. But this is only then possible, when a race can develop within unlimited borders and free from foreign influences, i.e., within a closed domain of civilization. In this case the art born therefrom also in all points corresponds to its own primitive presentation. Among the different races, that developed thus in isolation, must the species of arts become as diverse when compared, as the before mentioned bases whereon they were developed. Thus we see from this:-- the art evolved by a race within an isolated civilization is al-

always an acquisition, which must invariably proceed from its intellectual conceptions and opinions, its conditions of life, and the means at command for artistic expression. And especially when in otherwise different civilizations a similarity in the basal conditions is found, must this likewise appear in the art. But further must also every change in this basis by the acceptance of foreign ideas, the invasion of other customs and habits, the alteration of external living conditions, the use of later means, such as particularly result from the influence of foreign civilizations, must likewise produce a corresponding reflection in the civilization so affected or invaded.

The adoption of the possessions of a foreign civilization into its own culture is of high importance for the evolution of art. It follows in the manner already indicated in the consideration of general progress. Of the neu motives will those be of especial interest and find acceptance, for which already bases and analogies exist in the native conceptions, since they alone can be understood and correctly appreciated. Elements not understood are slightly or never considered and remain without deeper influence. But even the new impressions will at first only impart their characteristic indications. For reproduction the power of memory is determinative, which still remains entirely under the influence of previous conceptions, and which then only places the new in relation to the old. In reproduction then appears the freshly adopted types permeated by the racial conception; they are in a sense cast in the old forms. On the internal relation of the intellectual significance of the new ideas to the racial civilization and the intensity and duration of its influence will it depend, whether a permanent transfer of elements of a foreign civilization results and passes into development in a normal course of evolution, or whether an unsubstantial and transitory fructification follows, and the foreign elements are again gradually dropped.

The bases for the evolution of art here considered directly explain to us the most essential forms in the art creations of the peoples in their psychological relations. They enable

us to recognize the primitive facts in isolated civilizations, especially in the early stages of evolution the striking efforts for perfection attaining their climax, as also the very important process of change, that results as the inevitable consequence of the affecting or invading civilization.

If we now go further into the kind of artistic activity itself, then as we have already seen, as the earliest originators appear conception and memory. Originally connected with direct impressions, they first produce reproductions, when t they seek to again produce in a representation characteristics retained in the memory. But later by a combination of observations, by extension of unclear conceptions, result by the power of memory and of thought more or less novel, creatively produced works, thus originated by the formative power (imagination). Then if these extend over the interior and objects in space, they are so productively represented in hard materials or large size or in one perceptible by the sense of sight, that thereby the image originating in the imagination is realized or made visible in the actual material. At the same time is also thus restricted the effect of this portion of a all art, that we understand by the name of "formative arts". They are developed in three ways:-- in the creation or rather the enclosure of interiors by means of covering, combining a and forming suitable materials by architecture:- in the embodied representation of the ideal forms of the imagination with the corresponding form treatment of solid materials by sculpture or carving, and in their representation by means of drawing and color on a surface for producing the external appearance (illusion) of physical existence by painting.

Yet not all works produced in this manner are classed in the domain of the formative arts. In particular can an architectural work required in reference to actual purposes pass for an artistic fact not without something further. It only becomes such, if not only the basal idea be apparent and be strikingly expressed, but also with such a conception, that it directly produces pleasure, joy in the perfected handling of form and the invention of the beautiful, when the architectural work rises into the realm of the esthetic. This pleasure in the beautiful, in the esthetic, is a product of that

mysterious force innate in all mankind, by which originates the previously mentioned capacity for reproducing mental conceptions and intellectual ideas in form; it is called out by an architectural work, if the solid, hard and dead materials there employed are so imbued in all their parts by the formative artistic imagination, that they are idealized, receive an organic form, and appear as a whole with a rythmic alternation of living forces. Architecture there experiences great transformations, when it regards the architectural masses in accordance with the image conceived in the artistic imaginat-ion, develops them separately and places them in such mental relations, that the work produced represents a perfected organism complete in itself, on which the different parts represent necessary members, which are harmoniously developed for the whole and for each other, embodying statical life and the mastery of forces.

These members are not only characterized by their general form as receiving, supporting, bearing or crowning parts, but also especially by corresponding transformation and treatment of their external surfaces. Herein the formative spirit now goes so much further, it proceeds with so much greater care in the selection of the materials as well as in their treatment, the more elevated appears the purpose of the building and the higher the requirements in esthetic respects. To enhance the effect of the structural forces and of the artistic expression, the forms imperciptibly pass into ornament, that consists of motives of a technical character in relief or painting, or of forms taken from organic growth and life, in w which the functions of the structural members receive a symbolic expression, and in which they blossom in a manner. For the same reasons oolor is also added for the ornamentation of important parts, and thus by the colored accenting of the quality of the materials employed is heightened the illusion of organic life. There, where is particularly conceived the clear and speaking representation of the idea lying at the basis of the structure, or where the purely esthetic impulse appears in the foreground, even sculpture and painting enter i into the service of architecture mose extensively. The latt-

latter exerts a deep influence on these two sister arts, dominates them almost entirely in certain periods, and impresses its own characteristic stamp upon their effects. Thus architecture appears in a certain sense as the mother of arts, and which, fertilizing, guiding and determining, influences all stages of evolution in the progresr of the formative arts.

Since architecture is a product of the power of perception, thought, and of the general imagination, and in esthetic effects is based upon the inventive life, its evolution is most closely connected with the tendency and relation of mankind to the divine, to religion. Religious representations of the fear and veneration of God are its highest problems. In the buildings for religious worship also lies among all civilized nations the focus of artistic creation. Therein is developed for a race in a certain period a characteristic art style, which we understand under the term "style". This also always results from similarity in religious and customary opinions, in the artistic problems and the means and technics selected therefor; it comprises the entirety of all laws, rules, types and forms, in whose consistent use the particular race found the most direct and complete expression of its intellectual ideas. But conversely we also see in a definite style the b basis of the opinions of its entire period expressed in form.

In the origin of styles, whose rise to the climax and fall into decadence in its free and unrestricted development, as well as in the influence of foreign civilizations, we can follow all those transformations, to which we have already referred in mentioning the general process of the evolution of art in isolated and in intersecting realms of civilization. Thereby is also explained the high importance of the monuments as the milestones and measures of time for the periods of the development of the nations, and as documents for the entire history of mankind.

II. Architecture of Primitive and Natural Peoples.

1. Architecture of primitive races in prehistoric times.

In the darkness of countless thousands of years, through which the primitive beginnings of the human race extend backward, according to the existing condition of scientific investigations, the hypotheses of the natural sciences can throw but little light. Even into the diluvial formation of the e earth can we follow the vestiges of human activity, to that time when the extension of the polar climate southward resulted in the ice covering of a great part of the northern hemisphere, i.e. in the so-called early ice period.

Already in this gray primitive time men made use of fire; charcoal and fragments of flints are the finds in this formation. From thence until the entrance of the races into the domain of verified history, they pass through a course of development, only to be measured by great periods of time, which in detail were passed over with very unequal rapidity. T Thus the inhabitants of Europe found themselves still in their primitive condition at a time, in which the ancient Chaldeans in the East had already reached the climax of their civilization, while the North American Indians and the islanders of the South Sea at the first contact with Europeans still remained in the first stage of the evolution of prehistoric mankind. But most of the primitive races in the prehistoric period exhibit a course of development similar in its main lines, so far as it may be recognized in the prehistoric civilization of the inhabitants of middle Europe. These already afford g greater interest for us and also present us with the possibility of confining the different periods of prehistoric time within great outlines. Their stages of development will be best characterized by the materials from which the aborigines chiefly made their tools and weapons, with the perfection of which the advances in civilization were directly connected. Accordingy as a rule, three great principal divisions are assumed for prehistoric time, the stone, bronze and iron periods.

The beginning of the stone period is lost in the impenetrable darkness of remote antiquity; its end can be assumed for Europe in general at about 2000 B. C. In this stage the use of metals was still unknown. Tools and weapons chiefly cons

consisted of stone. The mode of preparation of the latter a allows us to divide the stone age into earlier (paleolithic) and later (neolithic) periods. In the earlier stone period the stone tools were still very rudely made by breaking and chipping, but in the later one were already ground and polis-. hed.

So far as their vestiges may be recognized on Eoropean soil, the men of the older stone age (paleolithic period) were still hunters and fishers, who dwelt in natural or artificially enlarged caves, beneath overhanging rocks, or the projecting leafy shelter of great trees, in covered trenches in the earth, and also perhaps in tents of stakes and the sknis of animals. These unfriendly dwellings would afford no interest to us, were it not for the remains of the first stage of human activity found therein, that exhibit in human and animal figures carved in relief and extremely animated drawings of animals, which were incised with flints on bones and reindeer horns. The objects also already exhibit ornaments, consisting of incised lines, rows of dots, zigzag patterns, waves, interlaced bands and the like, in which we recognize the lowest basis of ornamentation.

In the later stone age (neolithic period) the people reached a much higher stage of civilization. The ice had receded farther northward; Europe had assumed approximately its present form with the existing climate. Stone objects were made with greater care; already became apparent an endeavor after artistic treatment of form. Men were not only busied with h hunting and fishing, but also with the breeding of animals and likewise very soon with agriculture. They had learned to weave mats, to make fabrics for clothing the body, and to shape clay vessels and burn them in the open fire. Even yet were caves utilized as dwellings, or artificial excavations in earth were made with circular or rectangular areas. Yet there likewise appeared the most primitive form of the house construction in the erection of huts of stakes with wattle a and clay covering, covered with reeds, rushes, the bark of trees or straw. Where the possibility offered, these huts were built on pile scaffolds in the shallow margins of lakes,

manifestly for the better protection from surprise and for m more convenient fishing. (Fig. 1).

Of such pile structures there still exist the remains of entire villages, that formerly rested on piles above the water level, and were connected to the land by narrow bridges. In them appear the earliest productions of the science of carpentry.

The beginnings of stone architecture also extend into the neolithic period. But we find them not in dwellings, but in the resting places of the dead, that chiefly by the care and indication of burial places give evidence for the dead already extended among the aborigines of the later stone period. The deceased was placed in a reclining or seated position in natural caves or in tombs composed of great stone slabs and covered by a colossal block of stone (Fig. 2). When these stone structures are detached, they are called dolmens (stone tables), but Huns' graves in northern Germany, where a mound of earth (tumulus, barrow) is generally raised over them (Fig. 3), and passage graves, if a special passage leads to the tomb chamber. Other megalithic (great stone) monuments are rather to be regarded as symbols of religious conceptions, such as the menhirs (long stones) generally occurring in France, that are set up vertically as colossal isolated stones (a menhir in Brittany is 72.2 ft. high), and the cromlechs (stone circles) formed of one or more concentric circles of menhirs, of which the anciently venerated Stonehenge (stone enclosure) near Salisbury in southern England forms the most famous example of this kind (Fig. 4).

A new period came in for prehistoric mankind with the knowledge of metals and their uses. By this was introduced the bronze period, whose beginning in middle Europe is to be placed at about the commencement of the second thousand years B. C. Of the metals, in most domains, men at first recognized copper as a malleable stone, then its fusion with tin into t the harder bronze, infinitely more suitable for use in tools and weapons. The forms in the earlier bronze period, extending to about the year 1000 B. C., are similar to those of the stone age, but are always richer and more artistic. An abundance of novel ornamental forms arise. The ornament is indeed

chiefly geometrical ; but the flexibility of the metal, and especially the making of wire leads to the extensive employment of curved and recurved lines, especially of spirals,whose treatment exhibits an overpowering feeling for beauty of lines, uniformity and symmetry.

The later bronze period, that in middle Europe falls about in the time from 1000 to 700 B. C., is characterized by a development of forms evolved entirely from metal working, an e enrichment of technical processes, and an expression of enjoyment of pure decorative art, a knowledge of which is afforded by the numerous and excellently preserved finds in tombs, the luxuriantly ornamented weapons, utensils, and ornamental objects of all kinds.

For the technics of house construction, the obtaining of metal tools indicates an unexpected advance. The former connection of timbers by bast and branches were then replaced by intersections and tenons. Pile structures were perfected and in part were also transferred to the land as such, for example in the plain of the Po, where they formed pile villages, that were already enclosed by wall and ditch. In the further course of the bronze period, domestic architecture experienced a continued transformation, and in the later bronze period, it had already assumed fixed standards, given for us by the so-called house urns of burned clay, that served to receive the ashes from the cremation of bodies, generally common in this period. Their external forms should be regarded as imitations of the dwellings then common (Fig. 5). We can follow in them the entire course of the evolution of the oldest house architecture, from the simple circular and conical cave dwelling set into the ground with steep conical roof and elevated entrance doorway to the circular hut with flat and dome-shaped roof, and a lower doorway to the rectangular structure with high hip roof, still without a ridge, and finally to the elongated plan of the peasant's house with hip roof, in which the ridge and the series of rafters already appear. This house chiefly contained but one room, in the midst of which was the hearth. Yet examples are also already found with a division in the interior.

In the 7 th century B. C. was introduced a new metal in middle Europe by the trade routes, probably from the southeast, iron, which soon almost entirely supplanted bronze. Then begins the iron age, the last stage of prehistoric civilization, that extends down into our chronology. Likewise in this may be assumed two divisions plainly separable by the peculiarities of the artistic use, an earlier and a later iron period, that as a rule are named from the two localities of the finds, at which the most important remains of this period were brought to light.

The earlier iron period or Hallstatt stage, so named from the cemetery of Hallstatt in upper Austria, falls during the time from 700 to 400 B. C. Iron gradually supplanted bronze for weapons and tools, while the latter was retained for utensils and ornamental objects. In ornamentation becomes perceptible an introduction of foreign motives into the native decorative art, but which is transformed in accordance with the popular taste. Everywhere appears a fresh feeling for animated curved lines with geometrical and circular interlaced bands, into which are woven representations of figures, especially terminations in the heads of birds, horses and cattle. We have no definite conception of the architecture of middle Europe during this period, since the buildings were almost e everywhere constructed of wood and have entirely disappeared, and from the remaining walls of fortifications sufficient starting points cannot be obtained for the forms of that architecture.

The later iron period is also named La Terre stage (400 B.C. to 100 A. D.) from the place of its most famous find at La Terre at the northern end of Neuenberg Lake in Switzerland, where in the ruins of a very ancient blockhouse was found a mass of iron weapons, tools, utensils and ornamental articles. During this period the working of iron passed into full development. The forms themselves were considerably simpler, in accordance with the more difficult working of the metal; their ornamentation chiefly consisted in a new system by the incising of patterns and filling these with enamel. The decoration forms a peculiar and clearly expressed style, that freed itself from the geometrical basis and is lost in an arabesque

(page 214) of interlaced bands and network, in which the bodies of snakes, the heads and feet of birds and fanciful animal forms as terminations were woven together with astonishing inventiveness in an inexhaustible variety.

The civilization of La Terre was chiefly extended by the C Celts (page 140 and note on page 168) throughtout Switzerland, France, upper Italy and the East of Europe. Nothing more of their architectural works is known to us. What the Roman historian Tacitus states concerning the wooden houses of the Germans already appears to us in the light of historical tradition.

2. Architectural of peoples in a natural state.

For the conditions of civilization in prehistoric times instructive parallels are presented to us in the conditions of those wild races, that even in our days have remained at the stage of evolution of prehistoric mankind. Even today thousands of Australians, Fuegians, Indians and negroes still dwell in shelters afforded by nature or erected by themselves, like the aborigines of the earliest stone age, and they also employ the same tools and weapons as those. Other wild races have risen above this condition to the level of the neolithic period and of the earliest bronze age and build huts in similar forms to those previously considered.(Fig. 6). A certain high position among peoples in a natural condition was attained by certain races of aborigines of Africa and central America, w who relatively early obtained metals and learned to work them.

In Africa already existed, when the first Europeans came t there, great and powerful negro kingdoms with their own civilization, that chiefly manifested itself in a very skilful working of bronze and the art of wood carving. In their domestic architecture indeed they scarcely passed beyond the most primitive form of the circular hut constructed of stems, reeds and branches with a conical tent roof.

In America certain races, especially the Mexicans, the Peruvians and the Mayas formed independent civilizations, that h had already advanced into the bronze period at the invasion of the Spaniards. At least they were acquainted with different metals and had learned to work them, even if their weapons and tools still chiefly consisted of stone. Among them even the bases of the sciences and arts were cultivated, and arch-

architecture could already exhibit considerable works in the construction of temples, palaces and tombs. One finds there among the ruins of ancient American civilization the stepped pyramids as substructures of temples, terraces of palaces, as well as purely tombs. Their palaces exhibit by the vestibule galleries and spacious courts, about which are grouped the halls, and particularly by the entire construction of the masonry in airdried bricks with stone facings, numerous similiarities to the oldest buildings in Asia Minor, while the ornamentation exhibits almost the native wealth of forms of the prehistoric races, certainly in a usually overcrowded use, recalling the luxuriance of the decoration on East Indian architecture.(Fig. 7). But in mural painting and the technical arts (weaving, ceramics, goldsmith's work), they made advances, that rise far above the undertakings of the wild people of nature.

The examination of the art of aboriginal and natural races teaches us, that all and even the most primitive creative occurs directly employed by art, that this appears both as a r result of general conditions of life as well as of the peculiarities of the different races of people, and always reflects their religious conceptions, that likewise their ornamentation as a decorative art starts from the endeavor for ornamental treatment of utensils and of the surroundings, and its types result from the observation of nature and the kind of technical procedure attained(wickerwork and the like), explaining numerous abstract and symbolic relations. Also in the art of interiors is already found the feeling for beautiful uniformity and symmetry, even if still unconsciously effective. Thus we recognize herein a certain culture possession, that in accordance with the inequality of the natural tendencies of the races of people and the external conditions of their lives f further developed in very different ways, and even now has s scarcely gone beyond the wild natural peoples. But in the existing condition of the latter we have a very valuable support for our conception of the dreary dwellings of prehistoric peoples, into which one must descend in order to reach the earliest start of the roots from which grew the art of civilized nations.

III. Architecture of the Egyptians.

1. General and historical basis.

The great flight of mankind to a higher civilized and art life prevailed in the blessed river valleys of the Nile and between the Euphrates and the Tigris, in Egypt and in the ancient Mesopotamia. Even deep within the fourth thousand years before our era extend back the historically verified mounments of ancient Egyptian art, and the remains found on Asiatic soil may be referred bagk to a still earlier time, according to the results of recent investigations. But in a description of architecture Egypt deserves precedence, for there in a quite unusual number of well preserved monuments is unrolled a very perceptible and comprehensive picture of the evolution of art during nearly three thousand years, which can be presented only in a very imperfect manner by the remains of ancient Babylonian architecture preserved only in few and disconnected r ruins.

The land of Egypt forms a deeply cut valley between bare a and desert plateaus on both sides of the Nile valley, that nowhere on earth finds its parallel in natural conditions. Year by year in the late summer months the mighty stream rolls its masses of water and mud, overwhelming the entire valley, in which rain is a rarity, bring to it coolness and moisture and fertilizing the soil, so that without requiring great preparation it affords a rich return. Suca a fortunate land must quite early lead to agriculture, to the founding of permanent settlements, and to the greatest possible protection against foreign invasions.

The people dwelling here in the historical period came from native races previously living there. Which one of these formed the aboriginal population and immigrated (according to all probability from Asia), is still an open question. Industry, great energy, practical sense and sagacity are the bases of its characteristics, but beside these stands only a onesided art imagination. The ground conditions indicate to the separate races from the beginning the collection of forces, the necessity of subordination to the general interests, and thus arose very early in the Nile valley that monarchy based on fixed order, in which the kings (Pharoahs) were revered as

gods, and were clothed with power, that placed them in condition to develop to the highest extent the supernatural sense, already in the people by the everlasting mighty contest with the forces of nature, and to personify it in grand architectural ideas. All power was united in the king, both spiritual and secular. By the races of kings (dynasties), the Egyptians determined for themselves the entire chronology.

In the history of Egypt are generally assumed five chief divisions:- the Early period until the 3 rd dynasty (about 2800), the Old Kingdom of the 4 th to 6 th dynasties (2800 - 2500) with the capital at Memphis in lower Egypt. Then followed f for three hundred years a period of decadence and of separation into distinct races, until a Theban dynasty again restored the united state, the Middle Kingdom of the 11 th to 13 th dynasties (2200 - 1800). This period found its end in the invasion and supremacy of the Semitic nomadic race of the Hyksos. After their expulsion was founded the New Kingdom of the 17 th to 20 th dynasties (1600 - 1100). Thebes in upper Egypt became the capital; Egypt under Ramses II attained its climax a and the apex of its political power. Under his successors began its decadence. The country first passed under priestly rule, with which set in a continually progressive weakness a and disintegration, until dependence upon foreign conquerors could no longer be avoided. Yet again under the Saitic kings of the 26 th dynasty, who resided at Sais in lower Egypt, came a period of national elevation. But it was of brief duration. The internal strength of the Egyptian people was destroyed. In the year 525 the Persians, in 332 the Greeks (Alexander t the Great, and after 306 the Ptolemies) acquired sway over the country, and after it had finally sunk into a Roman province (30 B.C.), there also gradually disappeared the last forces of the once splendid Egyptian civilization.

Upon the entire civilized development of Egypt religion exerted the deepest influence; it culminated in the personification of natural forces, in the veneration of certain animals as symbols of the numerous deities, and in the deeply rooted belief in a continuance of the human soul after death, indeed with all the needs of mankind for food, drink and the like, so long as the body remained preserved.

2. Evolution of the architecture and the monuments.

Egyptian architecture proceeded entirely from the service of religion. For the ancient Egyptians the most important problem of life consisted in the construction of an indestructible tomb, in which after death its ka, i.e., its spirit double, could again unite with the body and thus participate in the joys of life eternal. Therefore the corpse must be prevented from decaying as far as possible (mummied), be concealed in deep excavations, and be protected from any destriction by a solid superstructure with carefully concealed doorways. This then led to the grand sepulchral architecture of the Egyptians, the mastabas and the pyramids. These are isolated structural resting places (tombs), the former for the great men of the kingdom, the latter for the kings. By this tomb construction the entire art of the early period was dominated. In the middle kingdom the dead were but rarely placed in pyramids and mastabas, but in rock-cut tombs, which as vaults and corridors were wrought in the steep precipices of the limestone hills enclosing the Nile valley. In the new kingdom, that coincides in time with the epoch of the great commerce of the nations, so highly important to the evolution of oriental art, to which Mycenean civilization likewise belongs (pages 52, 54), the monumental creations of the Egyptians received a new and grand expression in the temple architecture. The Pharaohs beheld their most earnest duty in the erection of eternal dwellings for the gods, by this fulfilment obtaining their good will. Thus arose buildings for the gods, indeed both detached temples as well as rock-cut temples, which in their solemn majesty, in their amazing boldness and magnificent design represent the climax of not merely Egyptian art, but of all the architecture of oriental antiquity. Here also came into full development the system of construction with free supports and horizontal beam ceilings, basal for all later architecture, that of column and architrave construction. The late period produces no new architectural types; its monuments entirely indicate a return to the original forms of the older and the middle kingdoms.

A monument of great importance for the early period is the Tomb of king Menes, the founder of the first dynasty. It con-

consists of a massive nucleus, arranged in the form of a rectangle about 42.7 ft. wide and 131.2 ft. long, containing the sepulchral chamber in the middle with storerooms at each side, and of an external protecting and covering structure measuring about 82.0 × 173.9 ft., whose sides are inclined and are formed like a series of separate piers. Bricks were employed as the material for this, made of Nile mud and dried in the sun.

An advance from this design is shown by the later detached tombs for the kings of the first and second dynasties, whose form also gradually passed into the tombs of the prominent Egyptians of the old kingdom. The latter were subsequently m mostly grouped around the pyramids and there have the appearance of benches, from which they received the Arabic appellation of "mastaba" (bench).(Fig. 8). In these are further added to the before mentioned chambers a living room and a room for prayer (tomb chapel) for the deceased. In a richer construction they received a grave chapel in which the offering to the dead was placed. At the rear of the chapel is always a false doorway, to personify the entrance to the realm of shades. The sepulchral chamber itself is sunken deeply into the rock and is accessible by a shaft, that was carefully filled with masonry after the burial. In such a mastaba of the 6 th dynasty (about 2600) is found the perfected technics of vaulting with voussoirs over a passage leading down obliquely to the tomb chamber.(Fig. 9). Bricks of Nile mud and rubble stone masonry form the material, later cut stone, the latter especially for the external facing. Externally the mastabas represent rectangular and box-like stone structures with battering walls and flat stone roofs without subdivision. Greater interest is afforded by the false doorways, in whose treatment may be recognized the imitation of a very ancient wooden architecture (Fig. 10).

Under the 3 rd and 4 th dynasties originated the form of t the pyramid, characteristic for the burial place of the Egyptian kings. These show us the primitive type of sepulchral mound (tumulus), transferred to stone and restricted to a fixed geometrical form. In their overpowering magnitudes these colossal structures still appear as dumb witnesses for the i incomparable power of the monarch of the kingdom of the Phar-

Pharaohs. To nearly the number of a hundred, they stand on
the elevated plateau of Memphis (near Cairo) for an extent of
about 46.5 miles along the border of the Libyan desert in sev-
eral groups, that are generally named from the villages of Gi-
zeh, Daschour, Saccara etc., lying in their vicinity. The ol-
dest form of the pyramid is explained as a directly increased
magnitude and height of the royal tomb of the 1 st and 2 nd
dynasty, the so-called mastaba.(Fig. 11). If the nucleus be
arranged in accordance with the dignity of the king in relat-
ive height, and the enclosing structure then be constructed
in offsets, there results the stepped form of the pyramid, as
the earliest examples of which are to be regarded that of Sac-
cara (of king Zoser of the 3 rd dynasty), at which even the
rectangular ground plan of the mastaba is retained. The pyr-
amid of Snefru (succeeding Zoser as the first king of the 4 th
dynasty) near Medum already passes to the simplified form and
has a square ground plan. As an intermediate form appears t
the hipped pyramid of Daschour, whose sides are broken in an
obtuse angle (Fig. 12).

Classical perfection is shown by the three giants at Gizeh,
the pyramids of Cheops (Chufu), of Chefren (Chafra) and of My-
cerinus (Menkaur), the first of which was 480.7 ft., the sec-
ond 454.4 ft., and the third 217.9 ft. high. The internal c
construction in regard to the arrangement of the rooms and
the access may be seen by a section through the pyramid of
Cheops (Fig. 13):- the subterranean tomb chamber, sunk deep
in the rock, a middle one, the so-called queen's chamber, ov-
er which is the actual royal sepulchre, that is lined with ac-
curately joined and polished granite slabs, and whose ceiling
was carefully protected against pressure by five relieving
chambers lying above each other. The great inclined gallery
measures 154.2 ft. in length and 27.9 ft. in height; its ceil-
ing is formed by corbelling, i.e., by stepped projection of
the ashlar courses. But the other passages are so narrow and
low, that they can only be passed in a stoopinm position. T
The sepulchral chambers were protected against intrusion by
ingeniously conceived sliding stone construction, and the en-
trance on the exterior was concealed with the utmost care.

The masonry consists of bricks or split stones with lime mortar, the external covering was of dressed ashlars of limestone and sometimes of granite in the lowest portions, weth very accorately executed bonding, so finely polished, that the joints are scarcely to be seen. For the practical handling of the great loads in transporting the colossal blocks, special inclined ramps were constructed of bricks.

At the eastern side of the pyramid was erected a separate tomb temple for the actual worship of the dead, on which the constrcction with horizontal stone beam ceiling on detached stone piers occurs, historically important in the history of architecture; but the latter have no members. Near the pyramid of Cheops stands the great Sphynx (Fig. 14), a colossal statue 131.2 ft. long and 67.0 ft. high, carved from a rock in the form of a reclining lion with the head of a man, that according to one assumption is to be explained as a symbol of the sun-god Re (Ra), but by another conception passes for an fear inspiring guardian of the tomb. It origin however does not fall in the same period with the pyramids, but in the succeeding one.(The expressive facial traits must be those of Amenemhets III, of about the year 1900 B. C.).

In the middle kingdom the building of pyramids and mastabas gradually receded into the background. In upper Egypt, particularly in the cemetery at Abydos, the pyramidal form, yet certainly in very small dimensions, became the type of the private tomb, enclosing the rooms common to the mastaba; the chapel of the dead is built before it. Elsewhere the dead w were chiefly buried in rock-cut tombs. These chiefly have a frequently narrow and deep vestibule (Fig. 24), an internal rock-cut main hall of a square or rectangular ground plan, f from which a carefully concealed shaft leads to the sarcophagus chamber (sekos) lying beneath it. In the rear wall of t the hall is found a niche with the statues of the deceased. The ceiling is flat or vaulted and is frequently supported by two rows of piers, so that the interior appears in a manner divided into three aisles. At the rock-tombs of Beni-hassan (about 2000), the entrance to the portico, open in front, each has two detached columns, that have a very flat circular slab as a base, an eight or sixteen-sided shaft, slightly diminish-

diminished upward (partly with shallow flutes on the different vertical sides), and an undivided square abacus. This form is still found in the extension to the great temple at Karnak erected by Thutmosis III (after 1500).(Fig. 15). It has received
18 the name of "protodoric column", although it is not to be assumed, that it served the Greeks as a model.

In the new kingdom the dead were likewise and indeed exclusively buried in rock-cut tombs, that extended in long passages (syringes) into the rock and frequently were of great extent. But these only present particular interest by the meaning and the splendor of the representations on the internal walls (Fig. 24), which relate to the belief of the Egyptians in the wandering of the soul and the judgement of the dead. The centre of the artistic activity of this period of the climax of Egyptian civilization and art lay in the temple architecture. T The capital of the new kingdom, the "hundred-gated" Thebes, became its centre of magnificence.

The ground plan of the temple, that should be a dwelling for the god worshiped therein, is substantially derived from the Egyptian house, in which a court with a portico, a wide hall of small depth lying opposite the entrance, and behind this a narrow though deep room form the chief parts, to which are connected the subordinate rooms, sleeping chambers, kitchens, rooms for the servants etc., the entire structure itself lying in a court surrounded by an enclosing wall. Corresponding to the religious conceptions of the Egyptians and to their monumental tendency, the temple design increased to the colossal. Only the best and most durable materials were employed for the construction.

The Egyptian temple stands in the midst of a widely extended area enclosed by a wall, the temple precinct, to which leads a wide paved avenue, the dromos. This exhibits a street formed to two rows of sphynxes, that was adorned by stately gateways at proper distances, and this is particiluarly emphasized as a festal avenue for the processions, important in the Egyptian service of the gods. The typical basal form of plan and elevation of the main building is shown in general by the temple of Chensu or Chons at Karnak (Fig. 16). On the exterior

On the exterior the great doorway always indicates the chief effect of the temple. Before the facade stand two obelisks, i.e., four-sided, slightly diminished upward, pillars cut from single stones of unusual height, and behind these also at both sides of the main entrance are colossal statues with the head of the royal founder. The entrance itself is flanked by two massive gateway towers, the pylons, which rise on narrow rectangular transverse areas and with inclined sides.(Fig. 17). On entering the temple one first passes into an open and nearly square court surrounded by porticos, the peristyle, and t then into the hall of columns (hypostyle hall) occupying the entire width of the court, that by the enlarged and higher m middle pairs of columns produces an impression of three aisles, and in its development indicates the climax of Egyptian architecture. Through narrow light openings in the structure above the columns adjoining on both sides, this interior receives a dim mystical lighting. Behind the hall of columns on the axis of the building, directly or connected by chambers and porticos, lies the sanctuary proper (adyton, sekos, sanctuarium), a narrow though deep, dark and low apartment, in which was placed the image of the deity. Around the sanctuary were grouped subordinate rooms as living rooms for the priests.

The construction and treatment of forms shows us the first example of an orderly developed and richly membered stone construction, whose centre lies in the column and architrave construction. Of Egyptian columns, we have already mentioned t the protodoric columns, developed from the four, eight or sixteen sided stone piers. Besides these further occur a great number of peculiar forms, that are derived less from structural reasons than from ornamental respects, and whose models are to be directly sought in the plant kingdom. These are t termed plant columns, differing according to the basal motive as the lotus, papyrus and palm columns.(Fig. 18). They almost always have a wide, low and circular base slab (base), a single shaft (shaft), or one formed of a bundle, generally diminished upward and with enclosing annular bands and a head (capital), with the form of an open or closed flower, a blossom or palm corolla. The oldest of them and the most important for all periods of Egyptian art are the lotus columns (Fig.

18 A). They already occur in the old kingdom, indeed with c closed capital and clustered shaft, and also with the open lotus; the capital there has a but slightly developed form. T The papyrus columns are recognizable by the flower corolla surrounding the shaft above the base and by the swelling of the shaft, and also by the sharp edged stems on the clustered shafts, are common in the middle and new kingdoms with both closed and open flower capitals (Fig. 18 B), and likewise the palm columns with round diminished shafts without leaves at the base or the swelling. On these may be most clearly recognized the direct derivation from the plant form. From the open papyrus bell capital comes the corolla capital, and by i its further development the scroll capital with volute forms in relief (Fig. 19). In the middle kingdom also occurs a peculiar form of the capital of the column frequently employed in the succeeding period, the Hathor capital, that shows the face of the goddess Hathor on two or more sides, and in its later shape with an abacus in form of a temple exhibits the complete degeneration of the style.

The ceilings are entirely constructed of stone, the columns being connected by beams (architraves) laid on them, these being then covered by slabs. From the unusual magnitude of the Egyptian temple and the weight of the masses, a great number of closely set columns are necessary. The Egyptian wall ((Fig. 17) also evidences in its exterior the original construction with tamped and dried Nile mud, with wattling of rushes and wood; hence the disproportionate thickness and the battering, which was customary with the Egyptians in the construction of Nile dykes, the covering in the earliest period by mats or strips and woodwork, later with stone slabs, and the lack of all subdivision with the exception of the upper termination by a half round and a strongly projecting cavetto (this being probably derived from the nature people, serving as a head ornament), by which was created the primitive form of an architectural crowning. Likewise the entrance doorway (Figs. 17, 20) receives as its upper termination a half round with cavetto, on which is found the symbol of the god Horus, the uraeus serpent in the winged disk of the sun. The half round extends

21 down the side angles of the walls, indeed as a reminiscence of the former mat or cloth holder, transformed into stone, or of the wooden moulding by which the ends of the strips were covered.

All walls and generally all visible surfaces are very richly covered by painted representations in relief, in which hieroglyphs, the characters of the ancient Egyptian writing play the chief part.(Fig. 17). They narrate to us with great perspicacity the interesting history of the Egyptian royal families. Their purpose was to tell a story and not to produce a purely esthetic effect by beautiful forms or colors; clearness and legibility were the highest aims, and hence the sharp expression of the separate letters and the rigind adherence to the types once adopted. The body and all its limbs were represented in profile almost after a pattern, the principal figures being emphasized by a corresponding magnitude, all lying in the surface, without any regard to perspective foreshortening. The colors were employed as far as possible uniformly as a means of enhancing the legibility and clarity (Fig. 24).

These principles are expressed in nearly all works of monumental sculpture and painting. They exhibit an extremely acute observation of nature, but chiefly present types and symbols and thus are characterized as monumental inscriptions in
22 stone, that on grand lines with color and form in a severely restrained architectural spirit and uniform style feeling were transferred into the domain of the formative arts.

Besides the hieroglyphics, motives for Egyptian ornament w were also derived from the technics of weaving and embroidery, forms of stars, the zodiac and other astronomical emblems, w winged suns, sparrow hawks and vultures, and from the plant world were chiefly taken the lotus flower, papyrus plant, nymphaea and water lily, sedge leaves and palm branches. In the arrangement of the ornamental work and the entire decoration of the temple is missed a gradation and enhancement in accordance with the purpose of the rooms. The uniformly sculptured and painted covering of hieroglyphics has the effect of a magnificent fabric executed in monotonous colors, stretched uniformly over all parts.

The greatest temple is that of Amon Re at Karnak, the highest undertaking of Egyptian art, a structure of vast extent, on which nearly all dynasties labored, whose columnar hall alone has an area of 334.7 × 167.3 ft. At the southwest it was connected by an avenue about 6562 ft. long, and formed by about 600 sphynxes, with the temple of Luxor, a creation of the new kingdom, which in size was not much inferior to the temple of Amon (Fig. 21). Besides these temples of the gods, in the vicinity of the rock-cut tombs of the kings on the border of the Libyan mountain range rose memorial temples (memnonium), among which the two tomb temples of Ramses II, the greatest builder of all the Pharaohs (named the Ramesseum) and of Ramses III in the Theban cemetery near Medinet Habu are c counted among the most prominent architectural monuments of the new kingdom on account of their regularity and their equipment. (Figs. 20, 22).

Of these temples, partly constructed as detached buildings and otherwise as grotto or rock-cut temples, the memorial temple at Dahr-el-Bahri at the west of Thebes is the most important. Its front portion consists of porticos, placed on three terraces rising behind each other, while the sanctuary with the rooms appeataining thereto was cut in the rock at the top of the uppermost terrace. Among the true rock-cut temples, the two of Abu Simbel are the most important.(Fig. 23). They have vast faaades entirely cut in the rock, that of the smaller temple having six standing colossal statues of Ramses II and of his wife, but that of the greater is dominated by four seated colossal figures 65.6 ft. in height. From the entrance on the facade passages lead far into the rock, whose walls are covered by paintings on stucco, relating to the terrors of p perdition (Fig. 24), terminating in the inner hall of piers or columns and the sepulchral chamber, whose entrance was still carefully concealed. For even the rock-cut tombs have the purpose of concealing the sarcophagus to the utmost. In the hall of piers or columns of the first of the two rock-cut temples are employed Hathor capitals, but in the last temple temple are piers with colossal figures of Osiris, the god of the underworld.-- Of other works from the best period of Egyptian art should also be mentioned the labyrinth, celebrated

by Greek writers, a mythical wonderwork of the old world, but we have no clear represestation of its plan and equipment.

In the decadence of the new kingdom departed the motive force of the creative spirit of Egyptian civilization. The late period produced no characteristic work. In the period of national uprising introduced by the Saitic dynasty (663 - 525), the creations of the old and of the middle kingdoms were imitated and the destroyed temples were again restored. The feeling for the monumental mass of colossal interiors receded; on the other hand a certain preference for richer decoration makes itself perceptible. The architecture indicates by this and by the return to primitive forms the stage of decadence.

During the rule of the Ptolemies Grecian art found admission into the land of the Pharaohs. But it could not master the inflexible colossal spirit of ancient Egyptian views of art and civilization, but only influence these in unimportant things. Alexandria, the capital of the new kingdom, indeed received a predominating Hellenic character. But in upper Egypt men remained faithful to the national architecture. The new monarchs favored it, and thus still arose under the Ptolemies some structures of importance, among them being the Hathor temple at Dendera, that of Horus at Edfou, and the charming group of monuments on the island of Philae. Likewise the Roman emperors followed in the footsteps of the ancient Egyptian rulers and erected works in their style. The splendid so-called kiosk at Philae is a creation of Trajan.(Fig. 25). Just in this do we see, that Egyptian art from the beginning remained faithful to its traditions as if by an iron law, until in the last stage of its course.

The importance of Egyptian art lies chiefly in the thorough development of the grand stone architecture of column and architrave construction and in the decoration of the walls by strongly conventionalized sculptured and colored representations from the domain of history and religion. -- In regard to its esthetic worth, it must be measured by its own scale; and then its works are numbered among the grandest and most magnificent undertakings of all times. For the history of evolution it merits our highest interest. During many thousand y

years did the ancient Egyptian civilization preserve its purity as in a severely isolated realm, until its promoters yielded in the contest with foreign conquerors, and the sacred p primitive and once so flourishing Egyptian art was overwhelmed on its own soil beneath the irresistible stream of the Greco-Roman development of the world, rolling over the land of the Pharaohs.

IV. Architecture of Western Asia.

1. Architecture of the Babylonians and Assyrians.

Infinitely more than Egyptian civilization, the great river domain of Mesopotamia in westery Asia has affected the history of the evolution of mankind. In the same manner as the N Nile valley has it been fertilized annually by the vast overflows of the two rivers, and this country was densely populated between the rivers, but was accessible around them, thus being subject to great racial changes. In the southwestern portion, the ancient Chaldea, dwelt in the earliest time attainable in history (in the fifth thousand years B. C.) the Sumerians, a highly gifted people, allied with the Aryan races according to its language, that soon and in any case already about 2500 B. C. passed into the Semitic people, settled in the country near it. But the Sumerians are to be regarded as the true bearers of the civilization of the ancient Babylonian kingdom, whose climax falls under the rule of the mighty king Hammurabi (Chammurabi), who about 2200 united the entire lower river valley under his sceptre, and beautified his capital Babil (Babel, Babylon) in the most splendid manner. But in the second thousand years arose a dangerous enemy to this kingdom in the savage and warlike Assyrians settled in the n northern river valley, likewise belonging to the Semetic family of races, who at last completely subjugated Babylon and founded a great power extending to the Mediterranean and Black Seas, the Assyrian world empire, that under Sargon II (722 - 705) rose to the highest power and civilization, but fell under Assurbanipal (Sardanapalus), and about 608 was overthrown by the invasion of the Medes and the revolting Babylonians. The Assyrian capital Nineveh was entirely destroyed and a new Babylonian kingdom was founded. Under Nebuchadnezzar (605) this attained the position of a world power, but only for a brief period. Weakened and shattered in its internal conditions, it was conquered by the Persian king Cyros (Cyrus) and incorporated in the Persian empire.

The religion of the Mesopotamian peoples was based upon the Shamanism of the Sumerians, the belief that magicians (shamans) gifted with supernatural powers acted as mediators between

mankind and the gods, among whom Anu, the spirit of heaven and Ea, the spirit of the earth, represented the highest deities. To these were later added the god Bel (Baal), revered by the Semites as the ruler of the world and father of the gods, and the gods personified in the stars, among which to Istar (Astarte, Venus) as goddess of fertility was assigned a prominent role. Upon the evolution of architecture these religious conceptions exercised infinitely less influence, than in Egypt. A real faith in immortality did not exist, and a special worship of the dead had never developed. Consequently sepulchral architecture never received a monumental development. Grecian and Roman writers tell us only of temples and palaces; only these and the great works for draining and irrigating the land are chiefly indicated by the remains found up to this time.

The entire ancient Chaldaic and Babylonian architecture came from the Sumerians. Their primary works were great dams and dykes, planned for regulating the annual overflows, among which a drainage canal discovered in Nuffar (the former Nippur), whose origin is indeed to be placed far in the fifth thousand years B. C., was already vaulted with voussoirs. Of the structures of the ancient chief cities of Sirpurla (near the modern Tello), Agade, Ur and Babylon, exist only mighty ruins, that evidence an unusual love of the princes for building. Owing to the lack of natural stone, men used airdried and burned bricks, for which the existing clay deposited everywhere afforded an excellent material, and the earth pitch flowing abundantly from the ground was a superlative binding and compacting substance. The entire structural system was determined by this material. The walls consisted of unburnt, airdried bricks with wooden anchors and inserted reed mats, in the earlier period exclusively held together by asphalt, but later in the upper courses by clay mortar. On the exterior the walls were subdivided by an alternation of projecting and recessed vertical bands and by buttresses of rectangular or semicircular cross section. The visible external surfaces r received plastering or a facing of burned or frequently of glazed bricks, or even a mosaic made of clay rods. The floors were generally paved with bricks. The ceilings were of wood

and apparently were always plane; over passages were construc-
ted tunnel vaults. In the forms of vaults the pointed arch
appears earlier than the semicircular arch. The entire meth-
od of construction indicates for the small resistance to cru-
shing, broadly based structural masses, disproportionately
thick walls and frequent terraced forms.

The religious buildings consisted of a massive structure
in the form of a stepped pyramidal, tower-like structure erec-
ted on a rectangular or square ground plan, that was crowned
on the uppermost platform by a magnificently ornamented temple,
the sanctuary, and frequently covered by a dome. The platform
was reached by stairways leading directly to it or by a cont-
inuous ramp, arranged with a gentle inclination spirally aro-
und the nucleus of the structure.(Fig. 26). Besides these tow-
er-like buildings sometimes were also found great walled tem-
ple courts with altar structures and covered rooms for worsh-
ip and a monumental gateway as for a fortress, similar to the
Egyptian pylons. The palaces consisted of massive towers wi-
th several great courts, into which opened the doorways of
the surrounding rooms. According to the descriptions of the
Grecian and Roman writers, these palaces were not inferior to
those of the Egyptians. But from the slight durability of t
the materials employed, those of the Babylonians existed but
for a brief time. The most important that has been brought
to light by more recent excavations for the palace of Nebuch-
adnezzar and the so-called hanging gardens of Semiramis, are
glazed wall friezes with finely modeled figures of animals a
and fabulous beings, whose conventionalization exhibits many
traits harmonizing with the Egyptian, yet shows a freer imag-
inative treatment.

A more complete representation of Assyrian architecture is
afforded to us by the remains preserved in the mounds of rui-
ns at Nimrud, Kujundschik (Nineveh) and Khorsabad. They adh-
ere directly to the Babylonian, but here it appears for the
warlike as well as splendor-loving people chiefly in the ser-
vice of the monarch for the glorification of his warlike dee-
ds and his court life. Therefore palace architecture also s
stands in the foreground. But few remains of temple architec-
ture have been found. But from these as well as from the rep-

representations on the relief slabs it appears, that the ancient Babylonian form of the stepped pyramid, termed ziggurat in Assyria, was likewise determinative here. The palaces also followed the Babylonian model.(Fig. 27). They stood on w widely extended terraced substructures, accessibly by double stairways and ramps, enclosed by a parapet wall, and they contained a number of rectangular courts, that each formed an enclosed plan, and with the adjacent rooms permit the recognition of their purposes as the seraglio (monarch's residence), harem (women's dwelling) and khan (buildings for servants and the offices). (Sargon's palace at Khorsabad measures 1128.7 × 1027.0 ft., has 30 courts and 200 covered rooms).

The material is the same as in Babylon; only to a moderate extent are natural stones employed, which were quarried from the nearby mountains of the upper river valley. The use of iron tools was already common in the 8 th century. The science of vaulting experienced a considerable further development. The gateways (Fig. 31) were covered by carefully executed round arches; sewers, passages and narrow rooms were spanned by pointed and circular or elliptical tunnel vaults, smaller buildings even by domical vaults.(Fig. 28). The walls were not seldom covered by slabs of limestone and alabaster. As free supports served wooden columns, whise shafts were sometimes sheathed with hammered bronze plates, but some were likewise of stone with plain shafts. In the treatment of the base and capital, the form of a compressed sphere ornamented by circular arches is peculiar to Assyrian architecture.(Fig. 29). Also animal figures and winged forms found employment as the supports of columns, indeed with a symbolic signification. (Fig. 30). On some capitals appear the historically interesting volutes, i.e., sidewise scrolls in spiral or snail form, frequently doubled above each other. The treatment of the wall surfaces is commonly by rounds placed beside each other. As a cornice is found on parapet walls one formed as a cavetto, on the enclosing walls being a continuous series of stepped battlements.(Fig. 31).

Great gifts are exhibited by the Assyrians in ornamentation. The grandest figures are the colossal forms standing as guards at the portals of the royal palaces, treated similarly to the

Egyptian sphynx with bodies of bulls or lions, human heads a and wings.(Fig. 31). A portrait likeness is wanting to the heads. The conventionalization characteristic is Assyrian a and Babylonian art occurs in the arrangement of the beard and hair. With geometrical and plant motives, most common are network, scrolls and interlaced bands, rosettes, palm leaves, pomegranates, a kind of (pine) cone, and the tree of life. The arrangement of the decoration, in regard to subdivision in panels, bands and enclosing borders, always follows the principles governing the weaving of fabrics and embroidery. Nearly all overlays are polychromatic in bright colors.

It was an extremely rich and highly developed civilization, that flourished on the soil of Mesopotamia. Its products in the art industries were widely extended and also exerted a strong influence upon the art of the West. Its scientific d determinations relating to the subdivision of the calendar, of weeks and days, in a numerical system, and even in measures and weights have remained influential until the present t time. But already internally completely outlived, it could no longer resist the finally invading Indogermans.

With the fall of the Assyrian world empire also commenced the ruin of Mesopotamia and its flourishing states. Their fortifications were leveled in order to destroy all hope of regaining the ancient independence. Babylon, the capital, enjoyed yet a brief existence. Slowly and permanently the primitive civilization fell. The inhabitants disappeared, the dykes fell down, the canals became filled with mud, and the rivers flowed over the unfortunate land without restraint, and which is for us now merely the wide tomb of such a formerly magnificent Babylonian and Assyrian civilization.

2. Architecture of the Persians.

The political inheritance of the Assyrian world empire fell to the Persians. These formed a branch of the great Indogerman (Aryan) family of races, to which likewise belonged the previously mentioned Medes and the East Indians. The former dwelt in Iran, the broad elevated plateau between Mesopotamia and the border of India. Their first great monarch was Cyrus,

who subjugated the Medes, the Babylonians, the Assyrians, and the adjacent races and (about 550) founded the mighty Persian empire, that finally extended from the Indus to the Mediterranean, even over Egypt, but to which was assigned a duration of only two hundred years. In the year 330 B. C. it was conquered by Alexander the Great and incorporated in his empire.

The religion of the Persians is based on the theory founded by Zarathustra (Zoroaster in Greek), of an allwise and almighty god Ahuramazda (Ormusd) as creator and preserver of the w world, the god of goodness, of truth and purity, who sought to oppose Angramainjus (Ahriman), the god of darkness, of lies and of evil. In this strife must also each individual man t take part, in order after death to enter into the joys of paradise. Herein the deities subordinate to Ahuramazda gave him strong aid, among them particularly that of fire and Mithra, the god of light, to whom therefore was paid especial reverence in the fire worship and the service of Mithra.

The influence of this religion first expressed itself in t the tombs, of which both detached structures as well as rock=cut sepulchres have remained to us. True temples were not erected by the Persians. As fire worshipers they required only the altars, that they built on high mountains within a sacred precinct, and on which was kindled the sacred fire. From the political character of the Persian world empire, that comprised so many races with different customs, always taking as a maxim the extension and glorification of the power of t monarchy, the entire art was compelled to take an exclusively courtly stamp, and the erection of royal palaces formed the centre of the entire artistic activity. The most important remains of these are those of Pasargada (near Murghab), Persepolis and Susa.

The tombs are either detached structures in the form of towers or stepped pyramids (tomb of Cyrus near Murghab), or are rock-cut tombs. The latter are simple and without ornament internally, but have on the exterior a complete facade cut in the rock, with the portico architecture peculiar to the Persians.(Tomb of Darius near Nakshhi-Rustam. Fig. 32).

The palaces were placed within an extended and elevated area enclosed by walls, on which the different structures were

chiefly arranged separately as gateways, reception halls and residences. The finest and most perfect example is presented by the great royal palce of Persepolis, that in its essential parts was erected by Darius I and Xerxes I. The buildings h have the character of columnar halls with flat roofs, in which a greater emphasis is laid on the columnar architecture, conceived as purely ornamental, than on the palace architecture of any other people. Although the columns are of stone, they exhibit unusually slender proportions, which thereby indicate that they had to support only a light wooden ceiling. They consist of a channeled torus or bell shaped base, a slightly diminished and delicately fluted shaft, sometimes with an intermediate block composed of several parts, and the specific Persian bull or unicorn capital (Fig. 33), on whose top rests the cross beam. On this is laid the triply divided architrave with dentil frieze (tomb of Darius), recalling the facing boards of the preceding wooden architecture, or a richly decorated main cornice in several members and crowned by stepped battlements.(Fig. 35). Doorways, windows and the niches preferably employed to animate the wall surfaces receive a rectangular basal form with a moulded architrave and a high cavetto as a cap (Fig. 34); they give us the earliest examples of an expressed window architecture. The Persians devoted g great care to the flights of steps constructed of marble, on which all visible surfaces were decorated by richly sculptured ornaments. Likewise the enclosures of doorways, windows and niches, as well as the plinths, angles of walls and their projections were constructed of marble or limestone, but the walls in the interior were of burned bricks, airdried bricks or even of tamped clay in masses with a facing of bricks or of stone slabs.

For the architectural development and the entire sculptured and ornamental treatment of the architectural works, ancient Persian art produced only very few new creations. Most forms were borrowed from Mesopotamian and Egyptian art, and that of Asia Minor, as being not otherwise possible by the entire origin and composition of the empire, and in this transfer certainly a freer feeling for princely elegance was active. To

the native fragrance of dignified classicality, that flows about the proud porticos (Fig. 35), these owe to the mighty influence of the architecture of Asia Minor and of Greece, developed at the same time in those western countries.

With the conquest of the Persian empire by Alexander the G Great vanished the splendid and luxurious court life of its prodigal monarch and also therewith the entire arts in their service, Grecian civilization and Grecian forms were brought in and were borne into the far East to the banks of the Indus. But since after the collapse of the monarchy of Alexander a new Persian empire arose on the ruins of the old and rose to a high elevation under the Sassanides (226 B.C - 636 A.D.), then the traditional ancient Persian style of architecture w was again recalled to life, and from its combination with Grecian elements of form and the Roman-Byzantine science of vaulting resulted the beginnings of that fanciful style of architecture, which was to come into full development in the art of Islam.

3. Architecture in the coast lands of western Asia.

Westward from Mesopotamia, in the extreme Asian domain bordered by the coasts of the Mediterranean Sea, which in its s situation, climate and fertility combined so many advantages, already very early were found settlements by Semetic and Aryan races, that in their political conditions as also in their civilization were more or less dependent upon the powerful adjacent kingdoms, but whose art is especially important for us, since it forms a natural connecting member between the art of the ancient East and that of the West. In northern Syria and between the course of the Euphrates extending farthest west and the coast mountains of the Mediterranean Sea, already about 1500 B. C. the mighty race of the Hittites (Hethites) founded a flourishing kingdom with an existence of 800 years, whose language and art exerted a controling influence over all western Asia. The narrow coast region of Syria between the Lebanon and the Mediterranean Sea was occupied by the Phoenicians, the bold voyagers and industrious merchants of the ancient world, to whom during the first thousand years fell

the sole carrying of the artistic products of the East over the waves of the Mediterranean Sea into the farthest West of northern Africa and southern Europe, and indeed yet farther beyond, founding numerous colonies for aiding and extending their commercial interests and for strengthening their power. Beside them in the little province of Palestine dwelt the Hebrews, who immigrated from Egypt about 1250, that were distinguished above all oriental peoples by their religion, characterized by severe monotheism, when they worshiped but one God and him without an image. In Asia Minor were chiefly found Aryan races as the bearers of a higher civilization, on the southern coast being the sturdy mountaineers, the Lycians, with the Lydians farther northwest of them, a powerful commercial people, that about 550 exercised supremacy over all Asia Minor, and at the northwest of the Propontis (the modern Sea of Marmora) to far in the interior of Asia Minor were the Phrygians, who already early in the third thousand years wandered over the Hellespont from the Balkan peninsula; to those a are to be referred the most ancient traces of an advanced architecture in Asia Minor. Also even if all these peoples in the evolution of their civilization were under the sway of t the great adjacent kingdoms, yet they developed their architecture again in their own way.

From the Hittites came the great palace and fortress ruins of Sandschirli, Boghaz-Koi and Boghaz-Oyuk, composed of cyclopean walls of massive blocks, of which the gateways were treated either as double towers with a colonnade between, them, or even with two standing sphynxes in the Babylonian manner. In the reliefs cut on walls as well as in the rocks, and sometimes of colossal dimensions, is exhibited a native style in t the pointed shoes, beardless faces and the tall pointed hats of the human figures, but which was later suppressed by Assyrian and Egyptian influences. On a Hittite relief is represented a sanctuary with two Ionic columns, which have to pass for the oldest known volute form of the Ionic capital.

Among the Phoenicians the centre of artistic activity lay in the practice of the art industries. This rose to a high point in the Phoenician chief cities of Sidon and Tyre. But

of architectural creations meriting consideration on the whole but little was produced. There are preserved to us a few architectural monuments at Amrith, small isolated temples cut from colossal blocks of stone (Fig. 36) and tower-like tombs, crowned by a dome or a pyramid (Fig. 37)whose treatment indicates the combined influence of Assyrian and Egyptian forms. But in practice the Phoenician workmen were masters in dressing stone, in the handling of great masses, and in the art of working wood. Therefore by the Hebrews, who certainly preserved no native artistic experience and were entirely dependent therein on the Phoenicians, were they called to Jeeusalem for the erection of their most important structure, the temple of Solomon. The plan consisted of a great walled temple precinct, the outer forecourt, within which lay the inner forecourt on a raised terrace, which like the external one was enclosed by subordinate structures like porticos. Within the latter rose the real temple house, consisting of a vestibule and an internal temple room, divided by a great portiere into two parts, the "holy" and the "holiest" places. The temple was constructed of stone, lined internally with cedar wood and c covered by sheet gold. It was entirely destroyed in 586 by Nebuchadnezzar. -- The Hebrew monuments in the Jordan valley, both the isolated tombs cut from boulders as well as the true rock-cut tombs exhibit a marked crossing of the art tendencies heretofore described with Grecian influences, and they date from the Hellenistic period, so far as they merit artistic c consideration.

Among the colonies of Phoenicia the island of Cyprus takes an important place. It was rich in temples of the great goddess Astarte, the Hellenic Aphrodite, who rose from the foam of the sea on its coast, according to the Grecian myth. Here an apparently Aryan race under the charge of the Phoenicians made their own transformation of Egyptian and Assyrian motives and created forms of capitals among other ornamental forms, that may be regarded as prototypes of the later Ionic capital. (Fig. 38).

The tombs of the Lycians in Asia Minor possess great interest for us. They are chiefly rockAcut tombs with facades en-

entirely cut on the rock, that exhibit in the clearest manner the direct transfer of Alpine construction framed in wood with its beam ends, panels and the like.(Fig. 39). Likewise the detached tombs cut from a boulder as a sarcophagus are executed in the same way. The later tomb facades instructively s show the change from the purely structural wooden framework to the Grecian columnar architecture.(Fig. 40).

An entirely different series of monuments is met with in L Lydia. Here are almost exclusively tombs, indeed in the form of the tumulus entirely foreign to Asian peoples, as a cone of heaped and tamped layers of earth above a circular wall of polygonal stones with plinth and cap (the So-called tomb of Tantalus), and partly of very great dimensions. (The tomb of Alyattes, father of the Lydian king Croesus (died 584 ?) exceeded in perimeter the largest Egyptian pyramids, and it still has now a height of 226.4 ft.). These tumulus tombs contained internally the carefully concealed grave cell covered by corbelling or by voussoirs, to which a special passage sometimes led.

Likewise in Phrygia, especially in the plain of Troy, still exist numerous similar tumuluses. But the rock-cut tombs have greater importance here, particularly those of Ayazinn, w whose grave cells partly imitate the interior of a house with benches and all details of roof construction on the scheme of a gable roof. The exteriors of these tombs chiefly exhibit only a doorway placed high in the rock with a kind of heraldic cap, consisting of round pillars with capitals and with l lions placed at each side.(Similar to the Lions' Gate at Mycenae represented in Fig. 61). But there is also found another type of richly decorated rock-cut facade with false doors, triangular gable, and a covering of the entire surface by geometrical patterns indeed taken from brick ornamentation.(So=called tomb of Midas). Since the grave cell is lacking in these tombs, they are to be regarded as places of worship or indeed as memorials of the dead. From the Phrygians also came the oldest vestiges of an advanced city architecture in Asia Minor, which Schliemann discovered beneath the rubbish mounds of Hissarlik in prehistoric Troy, and which are indeed to be referred to the third thousand years B. C.

All the peoples here mentioned were submerged in the great changes succeeding the contest of the Semites with the victorious invading Indogermans in the first half of the last thousand years before our era, or they were conquered by the national customs of the new rulers, and thus the native character of their art vanished. But their civilized tendency did not disappear in the domains of savage races; it lost itself together with tose of the dying oriental world on the lands of the youthful and fresh Aryan races of the West, and from this then sprang that rich and noble climax of civilization, that today exercises supremacy in the art and intellectual life of the entire civilized world.

V. Architecture of Eastern Asia in India, China a and Japan.

Aside from the great movement in the history of civilization, that was completed in the West of the Asian part of the world and there entered so deeply into the history of the nations, there was evolved in the kingdoms of middle and eastern Asia, in India, China and the adjacent countries, a civilization extending over vast domains, indeed then already comprising the half of all mankind, but whose course presents an entierly different picture in comparison with that of the West. While the civilization heretofore described is found in a constant stream passing from one people to another, always turning toward the Mediterranean Sea, finally overleaping to the Grecian peninsula, as we shall see later, in order to from t thence advance farther over new races in the West, ever becoming higher and more many-sided, the evolution of the civilization of the East was completed in slow and but slightly interrupted progress on the same soil and on the whole also entirely within the bounds of the same nationality, one-sided, only developed from its own needs, with a rigid adherence to types once formed. Even if the art of this empire in the course of its history adopted so many impulses from western civilization, these were yet so transformed under the influence of the religious opinions and of the character of the people, that the foreign elements are only to be recognized as reminiscences.

The weight of the civilization of eastern Asia lies in India. Here immigrated already in the beginning of the second thousand years B. C.main branch of the great Indogerman family of races, occupied the river valleys of the Indus and the Ganges, and finally the entire peninsula, exerting in time a strong influence over the distant East, on China, Corea, Japan and the adjacent countries. About 508 B. C. the Persian king Darius conquered the northwest part of western India, and in t the year 326 Alexander the Great took possession of the entire domain on the right side of the Indus. Thereby the forms of Persian and Grecian stone architecture penetrated into India and there mingled with the national wooden architecture,

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from which proceeded the peculiar and national ancient Indian art style. This was almost exclusively a religious monumental art and was originally based on Brahmanism, the oldest Indian religion, that accepts a divine trinity, Brahma the creator, Vishnu the preserver, and Siva the destroyer, in whose service were innumerable subordinate gods, semigods and demons. In the second half of the 6 th century B. C. appeared the great Indian reformer Buddha (the enlightened). He opposed to Brahminism, petrified in externalities, its speculative and power-seeking priesthood and its intolerant caste system, his wise teachings on the duty of self-denial, abstinence and isolation from the world, and thus founded Buddhism, which was then elevated to the state religion in the 3 rd century B. C. remaining such until in the 7 th century A. D. But this religion never struck deep root in the people. In the 6 th century A. D. originated a strong movement in favor of the Brahmin faith, in the course of which the "Neo-Brahmanism" became victorious (7 th century). This developed a high art period, until Islam gained entrance in the 12 th century, and in combination with the native art style attained to a development of fabulous splendor. Since we shall describe this late Indian (Mohammedan) architecture in another place, there comes into consideration for ancient Indian art only the periods of Buddhism and Brahmanism.

The oldest monuments date from the time of king Asoka. After he was converted to Buddhism (about 250 B. C.), he erected in honor of the divinely revered founder of the religion numerous artistic structures in the forms of memorial columns, topes, cave and grotto temples. Likewise under the sway of Neo-Brahmanism was grotto construction extended in a grand w way. But the highest works of Brahmin architecture are formed by the imposing detached temples, that we term pagodas.

The monumental columns (stambhas, lats) were erected in memory of the victory of Buddhism. They are about 39.4 ft. high and have a bell-shaped capital, that supports religious symbols, generally the sacred wheel, or figures of lions and elephants. As actual religious structures served the tobes (stupas). These monuments so characteristic of Indian art have the form of a tumulus completely rounded off, consisting of a

square or round base with a dome resting thereon. They were entirely constructed of stone and contained a small cell in the interior, in which the relics of Buddha were generally preserved. In this case were they preferably named dagopas. The substructure was generally enclosed by a circle of columns or a stone railing with gatew.ys, on which the ancient wooden architectural style with its rich sculpture appears to be directly transferred to stone.(Fig. 41). The cave or grotto structures indeed resulted in consequence of the isolation from the world taught by Buddha, as settlements of Buddhist priests. They are either true sacred temples (chaitya), and then have a ground plan similar to one of the Early Christian basilicas, as a rectangle cut deeply in the hill, when two or more rows of piers or columns were left standing, to obtain an interior in three or more aisles, closed at the rear end by a semicircle for the dagopa or the statue of Buddha; or they are dwellings like monasteries (vihara), when square cells are grouped around a hall with piers or columns. The execution is so complete as if the entire internal architecture and also frequently the facade of a detached and most richly ornamented wooden temple were directly imitated in stone. Even in spite of their depressed form, the columns and their varied composition as prisms and as swelled balusters with console supports for beams appear to be petrified wooden pillars.(Fig. 42). The most important rock-cut temples are those at Karli, Ellora and Elephantas. The latter belong to the creations of Neo-Brahmanism, which undertook there an entirely unusual work, when it not only excavated the rock to form temple interiors,but also detached the entire temple from the rest of the rock and then sculptured on the exterior of the colossal temple thus obtained an external architecture treated in the richest manner, so that finally the temple appears as a detached rock-cut cathedral wrought from a single stone. (Monolithic temple). The Kailasa at Ellora (Fig. 43) affords an excellent specimen of it. But the Neo-Brahmanic and all Indian art reached its climax in those mighty detached temples scattered in great numbers over all India, that are termed vimanas by the Hindoos, and pagodas by others. Those best known

among them are those of Sriringam, Madura, Chalabrom and Tanjore. They consist of a square cell, lying behind a three-a aisled room as a relic shrine, and before the former are placed one or more porticos. Over the cell rises on a low rectangular substructure the massive square principal tower in t the form of a high and many-sided pyramid (in the South), offset inward at each story, as a dome (in the North) outlined by a flat arc. This temple house is enclosed by one or more rectangular courts lying within each other and formed by walls, in which in the larger plans also lie subordinate temples, h halls for pilgrims (choultries), colonnades, sacred tanks etc. Likewise the gateways of these courts are crowned by those s stepped pyramids or domes, which impart to the entire temple design its peculiar and fanciful general impression.(Fig. 44). Their treatment by architectural members and sculptures is indeed truly marvellous. The formation of the supporting posts as columns, piers (Fig. 45), human and animal figures, and t the supported members, the cornice, frieze etc. exhibit an infinite diversity. Vacant spaces are scarcely found on the walls. The entire architecture, in connection with the overflowing ornamentation borrowed from the native flora, fauna and symbolism, presents a wonderful reflection of the luxuriant growth from the Indian soil and of its rich world of thought and imagination. It is the conception of the highest a and most amazing of all, that civilization has created in the tropics.

The northern adjacent empire of China also has a very ancient civilization extending back into the third thousand years B. C. This indeed developed in greater isolation, but still in the 2 nd century B. C. certain western Asian and Grecian influences, and in the 1 st century A.D. strong Indian-Buddhistic influences may be recognized. With the predominating tendency toward the practical and useful, toward industrial attainments, of the nation belonging to the Mongolian race of mankind, the chief attention was paid to art industries, in which the Chinese by their technical knowledge and artistic qualities reached a high stage, on which they have even repeatedly supplied valuable models to the West. In architecture the evolved in general a great advance only in engineering

structures, in design of canals, bridges and fortifications. their most important work in that domain is the Chinese wall, already commenced in 246 B. C. and erected for protection against the hordes of northern barbarians, which extends to a length of about 1864 miles over broad river valleys and high mountain ranges (Fig. 46). It is constructed of external and internal walls of about 3.28 ft. in thickness and of stone or brick, filled with rubbish and earth, covered with burnt tiles and crowned by battlements. Its width amounts to 11.5 to 26.3 ft. and its height to 23.0 to 52.5 ft. It was put into defensible condition by stately round-arched gateways, massive projecting square towers and a continuous open platform. It has in great part now fallen down.

Other stone structures of a monumental character to be mentioned in the first line are the triumphal and honorary gateways (pai-lu), which were erected at the command of the emperor or his representative before the gates, on the public squares and in the streets for a permanent memorial of a great event or in honor of especially deserving men.(Fig. 47). The forms employed for these are taken directly from the methods of wooden construction, which dominated the entire Chinese architectural style. The architecture exhibits always the same scheme for all buildings, both for residence and relegious p purposes; only the terraced and basal substructures and the stairways are of ashlars, but the superstructures are of wood, using brickwork with a plaster coating to fill the panels of the half timber work. Each story appears as a carefully executed wooden framework. As supports are employed round or square posts,(Fig. 48), the latter usually with rounded angles. They stand on a flat disk-like plate extending to the floor with a cove. Capitals are wanting. The beams supporting the ceiling rest upon corbel-like arms or caps projecting from them, that are elastically curved and are carved in the richer treatment, partly in the form of the heads of elephants, dragons etc. The ceilings are horizontal and are divided by wooden bands into small and mostly square panels, whose s surfaces receive ornamental decoration. Overlaid ornaments adorn the crossings of the bands. The centre of richer ceilings frequently contains a considerably raised square or pol-

polygonal panels with strongly projecting mouldings arranged in star form. Beneath the ceiling extends a peculiar frieze composed of wooden arms and caps (masugami), that take the place of the console cornice.(Fig. 49). The same form of cornice is again found on the facades as the uppermost termination.Fig. 53). The effect of the exteriors of Chinese buildings is based on the airy corridorrs or porticos extending around the ground story, and particularly upon the widely projecting roof (t'ing), that finds employment in abundant measure, even on the honorary and entrance gateways merely composed of posts. It is constructed by means of concave curved timbers, bent upward at the angles, is covered by concave tiles of different colors, and on the underside the purlins, braces and rafters are decorated in the most animated way by all sorts of fanciful carvings. This type occurs in approximately similar combinations on the temples as on the secular buildings.(Fig. 50).

Distinct temples were not erected in the early period. The ancient state religion for two thousand years was devoted to the veneration of heaven, earth and ancestors, and lacked the formation of myths. Therefore it required no temple. Under the open sky, on terraces were offered prayer and offerings. Only after Buddhism had found admission to a greater extent (in the 2 nd century A. D.) originated the slender pagoda tower (tha), so characteristic of Chinese architecture, which is composed of a considerable number of quite similarly treated stories, each one furnished with the fancifully curved roof, at whose edges sometimes hang bells.(Fig. 51). They stand on stone substructures, and generally have in the upper stories enclosing galleries composed of wooden columns, and the separate stories are treated just as in secular architecture. In the later period were also erected low and wide hall-like temple structures. They generally received a double roof. The interior contains in the centre of the room a structure like an altar for the divine image of Buddha. At the walls are placed representations of the subordinate gods.(Fig. 52).

In secular architecture the imperial palaces occupy the far most important place. Other residence architecture was too much restricted in its free development by the magisterial

building regulations, according to which a definite and fixed rule for every owner in accordance with his rank, had to be followed, concerning the proportions of the different parts, the number of columns to be employed and the like. The palaces consist of a larger number of structures, that are separately intended for the court, for the servants and the housekeeping. As a rule they were erected in symmetrical arrangement on terraces in several steps, surrounded by luxuriantly moulded and ornamented enclosures of stone. One story porticos connected the buildings intended for the housekeeping. T The doorways (Fig. 53) have a rectangular or pointed form, t the latter extending but slightly above the semicircular line. At the windows is usually found a very low foiled arch. For the plinth of the building, the architraves and even on particularly accented places were employed clay tiles, plain, ornamented or adorned by sculptured reliefs, which especially harmonized with the low carvings in wood.(Fig. 53). The ornament on the friezes exhibits geometrical forms, particularly zigzag patterns, interlaced bands, frets (Fig. 90, Greek bands), rosettes, repeats, scrolls etc. in a very free play of line, yet always in an animated course. In the panels only the play of waves and bands of clouds are combined in endless repetition, composing lively surfaces of water and cloud forms, in which play and roll the fanciful dragon figwres. To heighten the effect all parts of Chinese buildings, so far as the material itself is not treated in color (glazed clay tiles), receives an extremely varied painting, finely graduated to t the warm yellow tone of the ground.

Particular skill is shown by the Chinese people in the arrangement of buildings in the landscape. Their gardens are l laid out in skilfully conceived irregularity with cascades, light bridges, artificial grottos and ruins, temples, cottages, monuments and picturesque groups of trees, alternating w with peaceful meadows etc., and they are the direct prototypes for the style of the "English gardens", that became general in Europe from the middle of the 18 th century.

In Japan civilization and art, in regard to national customs, religion and external conditions, on the whole proceeded on similar principles, directly under the strong influence of the

Chinese, so that its architecture essentially has the same c characteristics as theirs. But since already the entire country surrounded by the sein its geographical location exhibits so many advantages over China by its mild climate belonging to the temperate zone and by the favorable nature of the soil, thus the Japanese also have in comparison to the racially allied Chinese a higher artistic endowment and an expressed inclination toward a refined and cultivated life for itself, t that also appears in a higher conception of artistic problems and an ennobling of the artistic means of expression. Thus the main type, the materials, the methods and the alphabet o of forms were then transferred, but were brought in Japan to a higher development and perfection.

The historical tradition of Japan does not extend beyond t the 7 th century B. C., but only frsm the end of the 3 rd A. D. does it afford authentic statements. At that time the island empire was permanently united under one monarch (mikado). The original religion of the country is based on the Shinto faith, the divine veneration of great world objects, the forces of nature and certain enlightened spirits, and also in the later period of ancestors, without strictly stated dogmas or definite customary commands. About the middle of the 6 th century A. D. entered Buddhism, and thenceforth the two religions remained peacefully together, with a varied influence and fusion of the worship peculiar to them. The Shinto temples exhibit a continual evolution from the earliest historical period until the present time, although in accordance with an ancient custom, they are torn down after definite periods, (in the province of Ise after 20 years, in Usa Hachimon after 33, in Izumen sometimes after 30 years), and the principle was established, that they were to be rebuilt as faithful imitations of the old temples. The influence of the Buddhist style of architecture, the changes in the intellectual and r religious views produced frequently by time and place, as well as those in artistic design also influenced the artistic transformation of these temples.

The Shinto temples in the earliest period (until the end of the 8 th century A. D. comprised a square or rectangular room, either undivided or separated into two cells, the front divi-

division serving as an anteroom to the sanctuary. The covering was a gable roof, leaving free gables on two sides. Around the temple interior extended generally an external corridor at the height of the internal floor, which was accessible by a comparatively high flight of steps.

The dimensions of the interior of the temple vary between 9.8 and 36.0 ft. Great round tree trunks are connected by h horizontal timbers and support the roof purlins. Besides the gable rafters crossing at the ridge or special ridge and purlin ornaments, no other decoration exists. In larger plans other structures are grouped around the temple proper, treasuries and guest rooms, granaries, living rooms and the like, without being connected by covered passages. The temple precinct is externally characterized in even simple plans by the torii, the gateways peculiar to Shinto architecture. These consist of vertical round trunks, or those slightly inclined toward each other, with girts and single or double caps at top, whose overhanging ends are slightly curved upward.(Fig.. 54 a). Their form is so typical, that even when erected in stone and bronze, as exceptionally occurred for the torii of the Yoya temple at Nikkno, it was in nowise changed. The most famous temples of this kind are those at Nikko in the province of Iso. There since the first century of our era has been preserved in costly shrines and revered the sacred mirror, as a symbol of the sun and of light, and likewise a sword, both of divine origin according to the legend; imperial princesses have from ancient times served as priestesses. These temples at Nikko still exhibit the Shinto style in its original purity.

From the change to the 9 th century onward Buddhism forms with their curved lines and surfaces intruded into the simple Shinto style of architecture in most of the temple structures. But the corridor is preferably enlarged at the entrance side to a place of prayer (kohai), that is covered by a shed roof. There occurs a further subdivision of the temple interior, y yet always so that the sanctuary occupies the most dastant a and relatively smallest room, in accordance with the Shinto belief, that the sacred mirror should never be exposed to the external world and the gaze of ordinary mortals. The form of

division serving as an anteroom to the sanctuary. The covering was a gable roof, leaving free gables on two sides. Around the temple interior extended generally an external corridor at the height of the internal floor, which was accessible by a comparatively high flight of steps.

The dimensions of the interior of the temple vary between 9.8 and 36.0 ft. Great round tree trunks are connected by h horizontal timbers and support the roof purlins. Besides the gable rafters crossing at the ridge or special ridge and purlin ornaments, no other decoration exists. In larger plans other structures are grouped around the temple proper, treasuries and guest rooms, granaries, living rooms and the like, without being connected by covered passages. The temple precinct is externally characterized in even simple plans by the torii, the gateways peculiar to Shinto architecture. These consist of vertical round trunks, or those slightly inclined toward each other, with girts and single or double caps at top, whose overhanging ends are slightly curved upward.(Fig.. 54 a). Their form is so typical, that even when erected in stone and bronze, as exceptionally occurred for the torii of the Yoya temple at Nikkho, it was in nowise changed. The most famous temples of this kind are those at Nikko in the province of Iso. There since the first century of our era has been preserved in costly shrines and revered the sacred mirror, as a symbol of the sun and of light, and likewise a sword, both of divine origin according to the legend; imperial princesses have from ancient times served as priestesses. These temples at Nikko still exhibit the Shinto style in its original purity.

From the change to the 9 th century onward Buddhism forms with their curved lines and surfaces intruded into the simple Shinto style of architecture in most of the temple structures. But the corridor is preferably enlarged at the entrance side to a place of prayer (kohai), that is covered by a shed roof. There occurs a further subdivision of the temple interior, y yet always so that the sanctuary occupies the most dastant a and relatively smallest room, in accordance with the Shinto belief, that the sacred mirror should never be exposed to the external world and the gaze of ordinary mortals. The form of

the roof lost its simplicity; its surfaces became concave. the number of ridge lines was increased. The caps and braces of Buddhist art were adopted. From about the beginning of the 16 th century onward the fusion of Shinto architecture with that of Buddhism -- aside from some exceptions like the Shinto temples at Nikko -- became nearly complete. As the last step may be taken the so-called eight ridge style, an example of which is given in Fig. 54 b, the temple of a hundred corners at Kioto.

In connection with the Shinto temples is yet to be mentioned the No theatres, that are frequently connected with them as well as with the larger palace designs. These consist of a square stage open at its sides, with an adjacent room for the chorus and the musicians. The latter is connected at the rear by a suspension bridge with the waiting and dressing rooms for the actors. The audience room extends around the stage in three rectangular wings. The No stage serves for the presentation of traditional dances, chiefly with a meaning connected with the history of the religion.

With the spread of Buddhism was introduced the Chinese style of architecture with the pagoda towers in several stories exclusively belonging to Buddhist art.(Fig. 55). Thenceforth arose numerous Buddhist temples (tera), that may also be termed monasteries on account of their plans as great groups of buildings. Among them the temple (or monastery) of Horiuji, completed about 600 A. D., presents the most prominent example of the early period. On a rectangular enclosed area accessible through large and impressive torii were erected several structures, among which the one or two story Con-do (main temble, golden hall) and the Ko-do (preaching or prayer hall) o occupy the most prominent places. In the immediate vicinity also stand the Ko-ro (drum tower), the Sho-ro (bell tower), both chiefly in two stories, the To, a tower structure in sevveral stories, and the Kairo or Ho-ro, a portico-like gallery or cloister, which connects the main temple, erected about at the centre of the temple plan, with the preaching hall, t the bell and drum towers and the pagoda. A memorial capital the (Shakado) in memory of the founder of Buddhism, a library (the Kiozo) containing the sacred writings and a treasury (Ta-

(Taho-to) for receiving the relics and temple treasures comp-
lete the inner temple enclosure. A gateway separates this.
In the outer circuit about the inner temple precinct are grou-
ped the dwellings of the priests, the bath house and the trea-
sury (Shosoin or Hozo) as fireproof storehouses for precious
articles and provisions. Aside from the stone substructures,
all these buildings are almost entirely constructed of wood.
The supports are round wooden columns diminished in curved
outlines, (Fig. 56), on whose tops elastically curved caps
or braces intersect as supports of the beams. Thereby the
interspace also receives a harmonious outline. The wide pro-
jection of the roof rests on inserted lower rafters. The cur-
vature of the roof is produced by several rafters set over e
each other, the ends of the lower ones forming a continuous
and very effective dentil band.(Figs. 54, 55). The internal
ceilings are mostly horizontal and are divided into small re-
cessed panels by bands, and which are later decorated by orn-
amental and figure representations, especially birds and dra-
gons. For richer designs already at an early date (in the 8
8 th century), the walls enclosing the principal room were c
connected with the horizontal ceiling by cavettos, or the ce-
iling itself was divided into two surfaces, the central area
being strongly raised and passing into the lower surface by
a cavetto. The altar generally stands in the interior in t
the middle between the two main pillars, more rarely next the
rear wall. It is composed of a massively appearing substruct-
ure, very carefully grouped mouldings, and a very elegant ra-
iling above this. The entire execution of the temple constr-
uction is excellent. The Japanese are masters in the art of
joinery. Their works are characterized by the greatest care
in the construction and an unexcelled and loving treatment of
the rich ornamental carved work of all details.(Fig. 57). The
most important motives in ornament are formed by the cloud b
band, also occurring in Chinese art, the movement of the wav-
es, forms of plants, flowers and animals, very freely conven-
tionalized. Finally the visible parts receive a warm and har-
monious coating of colors, combined with refined taste. This
high perfection of Japanese buildings is due to the fact, th-
50 at the Japanese nobility took up the practice of art as their

privilege, and the care of art was transmitted from generation to generation.

The best period of Buddhist-Japanese temple architecture f falls in the 10 th and 11 th centuries. In the 16 th century the erection of castles (Shiro) and palaces becomes more more important, which is chiefly expressed in the grand and skilful lay-out of the general plans, as well as in the splendid equipment of the buildings with sculptures and painting. Likewise here were not arranged a large number of rooms in a single building, but where several halls were to be provided, these were erected in separate structures and combined in groups of buildings, that in great part were connected by porticos. Herein Japanese art shows itself clearly freer than the Chinese. The castle of Nijo in Kioto was completed in the year 1602 and is taken to be the most prominent masterwork of this period.

Its highest triumph and most intimate charm is evolved by Japanese architecture in the "landscape architecture", the fairy-like designs of the parks of great temples and palaces, and even if in lesser proportions, in the extremely harmonious gardens of the separate dwellings. Here appears the innate art tendency of the Japanese in the happiest fusion with their inborn love of nature. By it is also determined the plan of the simple house. As a rule, this is only occupied by one f fagily, and therefore it is small, one story and without cellar, without stairway, attic or fireplace, also being extern--ally almost without architectural treatment; its insignificant side is toward the street. On the three other sides the internal rooms are enclosed by sliding panels instead of permanent walls, and these can be slid apart independently, so that separate rooms may be changed into an open hall, and thus be brought into direct connection with the garden. Likewise the internal division walls are mostly movable, in order according to need, to be able to make changes in the subdivision of the rooms at any time. This house has not its propotype in China, like the Buddhist temple; it is directly originated f from the climatic conditions of the country and from the requirements and customs of the people, as a purely national product.

Until the end of the 18 th century continues the advance of Japanese architecture. Thenceforward an endeavor for merely external magnificence with frequently work purely for show, an invasion of meaningless linear curvatures, a certain Barocco tendency, foreign to the nature of the Japanese style, became perceptible; the stage of decadence commenced.

Since the year 1868, the Japanese royal house and its government has striven to strip off the ancient feudal forms, both in political arrangements as well as in architecture, and to transform public architecture in accordance with European models. Thus gradually disappears in the country of the setting sun the characteristics of its ancient civilization and its rich art in so many lines.

VI. Grecian Architecture.

1. General and historical basis.

If after our consideration of the architectural monuments of oriental antiquity, we turn our eyes to the West and enter on Grecian soil, we obtain an entirely different picture, than the scene of ancient oriental ciwilization and history can present. Not a widely extended river valley, that became for its inhabitants the condition of a monotonous and common life, but a country open on all sides and washed by the sea, which with its deeply intersecting bays formed a natural communication for commerce, at first between the numerous islands of Aegean Sea and also thus between all the coastal lands of the oriental and the western world lying around the Mediterranean. To this are added the rich advantages of an unusually favorable natural condition of the country by the rich alternation of boldly rising mountains with fruitful valleys and plains, and a rare diversity in climatic conditions, where the North is adorned by beech forests and exhibits the entire character of the moderate climate, while in the South the palms wave in the midst of fragrant groves of oranges and lemons. In this land we meet with a people sprung from the ancient race of t the Aryans, endowed with the intellectual and national advantages of this family of nations, that evolved a wonderful climax of civilization and of art, whose works up to the present time are reckoned the most exalted and the noblest of all, w which the human mind has ever conceived and produced.

The roots of Grecian art are found in that widely advancing civilization developed in the coastal provinces and on the i islands of the Aegean Sea, whose remains were discovered to us by H. Schliemann and his coworkers in the rubbish heaps of Hissarlik, Mycenae, Tyrins, Cnossos and at other places. This so-called Mycenaean civilization comprises the pregrecian stone and bronze periods' in age, importance and extent, it is not inferior to the Chaldean and Egyptian. Its best period falls in the time from 1900 to about 1200 B. C., according to dateable finds, and particularly to conclude from introduced Egyptian products. As its supporters are to be regarded the Achaians, who settled on the eastern coasts of Greece as far as Crete. The Greeks later named them Pelasgians and des-

designated by this name all peoples located in Greece in the prehistoric period.

The Greeks assumed Thessaly as the true native land of their race. There was found a chief seat of Mycenaean civilization celebrated in legends; there had the Aeolians*their home, one of the three chief races of the Grecian people. The two others were the Dorians and the Ionians. The former dwelt in the prehistoric period in the province of Doris in the heart of Greece. The Ionians had settled farther south in Attica, on the isthmus and on the northern coast of the Peloponessus.

Note. The Aeolians probably did not form a race of special character like the two others; the Greeks designated all as Aeolians, who were not of Doric or of Ionic race.

About the end of the second thousand years B. C., there occurred in connection with the first severe contest of the Hellenic races with the Aryan peoples, those great movements and racial displacements, that gave to Hellenic civilization its permanent basis. The Aeolians took possession of the northern part of the western coasts of Asia Minor and the island of Lesbos; the Ionians settled on the middle portion of these coasts and the opposite islands of the Aegean Sea; but the Dorians penetrated southward, conquered and occupied the Peloponnessus, the southern islands of the Aegean Sea and the southernmost portion of the western coasts of Asia Minor. Some centuries later, they extended their domains by great activity in colonization over the western provinces about the Mediterranean Sea, especially repressing the Phoenician naval supremacy, and they founded in Sicily and in lower Italy a strongly flourishing colony of Magna Grecia.

Of the three races, the Dorians and the Ionians exerted a predominating influence upon the civilization and art of Greece. Extremely unlike were they in regard to their natural talents:- The Dorians with manly strength, heavy, earnest and dignified, but also brave and temperate, on the contrary the Ionians with warmer feeling, a mobile imagination and an extremely high intellectual endowment, but also with a certain tendency to live well, which reduced actual powers and had as a result mistrust, envy and jealousy toward great men risen from the people. But in spite of this diversity, after they

had obtained permanent habitations and had attained to orderly government and commonweal, the Dorians in Sparta and the ionians in Athens, the Greeks felt themselves to be one race, and this unity was carefully maintained and strengthened by the common festiwals in Olympia, Delphi and other places, recurring at regular intervals. Thus also in the first half of the 5 th century they survived that mighty test of strength, in which the little nation of the Greeks overthrew an overpowering enemy invading them from Asia, the Persians, after a f famous war, and thus retained their national independence. t Thereby Greece entered on its best period. It was unfortunately of but comparatively brief duration. The splendid rise of Athens as the centre of political power and to the elevation of sciences and of arts aroused the envy of Sparta, and thus originated that unblessed contest of the individual states for supremacy (hegemony), in which Greece presents a picture of the most wretched disruption. In this war of brothers the Greeks squandered their best powers, until they yielded almost defenceless to the Macedonian conqueror (in the battle of Cheronea in 338) and lost their freedom forever. Then fell into decadence the national individuality and the purity of Grecian life and of Grecian art. The later culture developed by the new masters already manifests a transition to new conceptions and new forms. In the year 168 the kingdom of Macedonia was subjugated by the Romans and Corinth was destroyed in 146 B. C. Greece had become a Roman province. Thus ended its political history. But in the realm of thought and of beauty, the Greeks now entered into their supremacy over the world.

In the entire Greek ciwilization, the representation of the gods plays the most important part. The ruler of heaven is Zeus, "father of gods and of men". With his spouse Hera he is enthroned on Olympus at the head of twelve gods, to each of which is assigned a particular field of activity. His brother Poseidon bears sway over the sea and the waters. Hades is over the underworld, the realm of shades. Under these act numberless deities, that are busied in all nature and all phenomena, indeed even in the entire domain of thought. The gods

are like men in body and spirit; they personify the conception of the highest ideal of the most beautiful and most perfect existence, but also share with men their misfortunes. They stand in the closest relation to men, and from this intercourse proceed demigods (heroes), whose fates fill the rich contents of the world of Grecian myths, made immortal by Homer and Hesiod in their songs. The chief gods show men their fortune in the oracles. To them magnificent temples were erected for dwellings, for the display of the image of the god, and as treasuries for the precious articles offered to them.

Grecian temples were consecrated gifts of the nation, of the different races, of the cities or rulers to the gods. In temple architecture the Grecian art spirit first found expression, and the diversity of the artistic conception of the three principal races; all Grecian architecture matured in t them.

We divide its development into the following periods.

I. The Mythical or prehellenci (Mycenaean) period(until 1104.

II. The archaic period from the Doric migration until the defeat of the Persians and the hegemony of Athens (1104 - 476), or more accurately assumed, from the beginning of the Olympiads, from 776 to 476.

III. The best period from the beginning of the hegemony of Athens to the occurrence of the Macedonian supremacy.(476 - 338).

IV. The Alexandrine or Hellenistic period until the subjugation of Greece by the Romans.(338 - 146 B. C.).

2. Prehellenic (Mycenaean) architecture.

The earliest vestiges of an advanced Mycenaean architecture were found by Schliemann beneath the rubbish heaps of Hissarlik on the site of ancient Troy, located in the northwest part of the peninsula of Asia Minor and on the Hellespont. Here were uncovered the ruins of several cities, that successively stood on the same place, and which were named the first, the second etc., from the layers above each other.

The earliest plan dates from the ancient Phrygians, who are assumed to have migrated in the third thousand years B. C.

from the Balkan peninsula across the Hellespont into the province of Troy. The second layer is that of prehistoric Troy. With the ruins of Tyrins, Mycenae, Cnossos, Phaestos and Argos, this forms one of the most important locations of finds for the development of prehellenic art. Prehistoric Troy is a city plan executed on the comparatively small area of about 19.4 acres, surrounded by an enclosing wall with tower-like strengthening piers, erected as an irregular polygon. This wall was strongly battering in its lower part and there concisted of quarried stones with a facing of carefully jointed masonry, but in the upper portion of airdried bricks with inserted timbers, both lengthwise and crosswise, as well as angle posts, with clay or river mud as mortar, and a thickness of 11.5 to 13.1 ft. Of the houses erected within the citadel, a group accessible through an inner gateway already exhibits the typical principles of the later typical Grecian dwelling. The dwellings of the men and of the women are beside each other in separate buildings, the women's house consisting of an open vestibule with two relatively small rooms lying behind each other, but the men's dwelling is composed of a deep structure formed by the projecting side walls, an open vestibule in front, behind being the single large room about 32.6 ft. wide and 49.2 ft. deep with the hearth in the middle, the megaron or men's hall.(Fig. 58). The construction is the same as on the external city wall; the ceilings were formed of round wooden beams coated with clay; they are not yet supported by columns. This second layer appears to extend back into even the third thousand years.

The succeeding remains up to the sixth layer appear as gradual extensions of the original city plan in progressive construction from the late stone period until the matured bronze civilization. To the latter belongs the sixth layer, which corresponds to the Troy described in the Homeric poem. It already comprises an area of about 50 acres with an enclosiing wall about 16.4 ft. thick and carefully constructed of courses of regularly wrought stones with rectangular cross sections. Likewise on the houses is found an equally solid stone construction. The form of ground plan is yet the same

as that of the prehistoric Troy of the second layer.

A vast advance beyond this plan is found in the city of Tyrins, the racial seat of the Heraclides, belonging to about the middle of the second thousand years. This forms one of the most magnificent royal capitals of the prehomeric period and a chief work of Mycenaean civilization. The city lies on a rocky reef about 984.3 ft. long and 328.1 ft. wide, rising from the Argolic plain, and it is divided into the lower city for the garrison and servants, and the upper citadel with the palace. The enclosing walls of the upper city are still well preserved and have an average thickness of 19.1 ft. They are built of massive blocks of stone and contain passages like galleries and doorways to the adjacent rooms (c in Fig. 60), indeed utilized as storerooms. Their covering is formed by corbelled stone courses, ending in a triangle.(Fig. 59). To the palace plan proper (Fig. 60), leads a long passage extending within the line of the walls and closed by a gateway, by which one passes to the great outer gateway structure H (Propyleion) and then into the spacious forecourt F. From thence one enters through a smaller gateway K into the inner court L of the royal palace, that is surrounded by porticos on three sides, and contains on the right of the entrance and opposite the palace the altar A with the sacrificial pit. The house of the monarch (men's dwelling, Andronitis) itself consists of an open vestibule (Aithusa) with two columns, the transverse room behind this (Prodromos) and the men's hall (Megaron) with a round hearth at the centre and four wooden columns, that support the ceiling. Over the hearth was probably a square opening in the ceiling for the admission of light and the escape of smoke, or openings were left at the edges of the ceiling between the beams. A narrow passage extends around the men's dwelling, and a similar one about the women's dwelling lying on the court N. This was of similar form but was smaller and accessible with more difficulty. Among the numerous subordinate rooms was also found located n near the men's hall a bathroom with a clay bath tub. Likewise care was taken for storerooms and housekeeping rooms, as well as work rooms for stonecutters, potters, goldsmiths etc.

The palace plan of the citadel of Mycenae exhibits the same types of buildings as in Tyrins. The main gateway of the enclosing wall is 9.4 ft. wide and is adorned by the famous relief of the lions.(Fig. 61).

Of high importanca to our knowledge of prehellenic art are further the results of the more recent excavations on Crete, in the kingdom of the mythical king Minos. This island farthest south in the Aegean Sea already in the prehistoric period was the centre ofa high civilization, that extended over the entire Aegean archipelago, and whose offshoots in certain products may even be found in Egypt and Spain. The earliest Cretan buildings date from the third thousand years and strikingly have rounded circular or oval forms. They are constructed of uncut stones without mortar and are frequently divided into several chambers. Likewise on the mainland were found such detached round structures. They are the direct precursors of the round domen tombs commonly occurring there. Transitional stages to the succeeding epoch have not yet been discovered.

After 2000 the houses have rectangular plans. Of the royal buildings, the extensive "palace of Minos" at Cnossos and that somewhat smaller at Phaestos have been uncovered for the most part. Their plans substantially differ from those of the mainland. As we have already seen, the latter are separate structures with a unified and strictly isolated arrangement, in all probability always of one story, accessible with difficulty and enclosed by a solid defensive wall. But on Crete the architectural style is one entirely open, with numerous rooms extending into each other and connected by passages, several stories above each other (four in Cnossos, required by the sloping site) and carefully constructed stairways. The extensive and complex structure is not enclosed by a wall for defense or protection. We see herein a proof of the security enjoyed by the Cretan monarchs. The arrangement of the rooms follows no definite rule. Great halls do not exist. The best apartments appear to be rectangular and of moderate size, accessible on two or three sides through porticos with piers, outside which are placed open columnar porticos. The piers

are built of rectangular ashlars cut with sharp edges and accurately set on each other, leaving between them free access to the different rooms. Particular interest to the history of architecture is presented by the columnar construction first occurring here in western architecture. The evolution of of this is to be attributed to Cretan art alone, since the column employed by it exhibits a form treatment entirely different from the Egyptian column derived from plant forms. The Cretan columns have a capital composed of a large torus with scotia and lower moulding, a shaft strongly diminished downward and a low plinth as a base. This is of stone and freqquently the capital also. But the shaft was originally of wood and also retains in its later change into stone the characteristic diminution downward.(Fig. 62). This is explained by the direct setting of the wooden trunk, so that the greater sectional area is next the load to be borne (like the case today with our table legs). On the capital rested a square cap or even directly the architrave beam, on which were placthe round beam ends of the ceiling.(Also see the column in t the relief of the lions in Fig. 61). The architectural style is similar to that of the mainland; the substructure consists of ashlars and the superstructure of rubble masonry with inserted timbers and brick walls. The wall surfaces are plastered and generally painted; likewise the floors, that are of p plaster, and frequently have bands of stone slabs. Well built winding stairways of stone connected the stories. The wooden columns, the ceilings and wall friezes are partially covered with bronze or gold leaf. The architraves of the doorways a are of limestone, and the plinth of the external walls is covered by gypsum slabs.

About the middle of the second thousand years B. C., the c columnar construction of Crete had also found entrance to the mainland. Both in the porticos of the gateways, that were a arranged at both sides of the strong wall containing the entrance, as well as in the porticos of the royal palace, now of great dimensions, and in the men's hall (see H and K, also M in Fig. 60), columns were employed to support the ceiling. Their treatment in general is the same as on Crete.(Fig. 63).

We have already mentioned the plan of the citadel of Tyrins (page 55), typical of the palace architecture of this period on the mainland.

The Cretan royal palaces were on the whole richer and more magnificent, than those erected on the mainland. But the latter excel them in the isolation of the plan and the clear arrangement of the royal palace, and as we shall see later, this was of importance as a prototype of classical Grecian art. The architectural style of the mainland also later reacted on Crete. The differences disappeared. Notable are the increasing pretensions of the Mycenaean monarchs and the advances of the builders in technical attainments. The palaces of the l late period of Mycenae have excellent sewers; the ashlar work was treated with great certainty. From the wall of the citadel at Argos * has remained to us Cyclopean masonry, composed of massive, irregular stones, carefully wrought on joints and faces.(Fig. 64), frequently leveled by horizontal beds, which are also treated regularly at the angles and ends, a mode of construction, that extends down deep into the historical period. * *

** The Greeks ascribed to the Cyclops the construction of the walls of colossal stones dating from the heroic period, on account of the mythical race of giants, hence the name.*

*** In the Hellenic period the Lesbians were known for their skill in transferring by a pattern in lead the angle of a polygon to another stone to be fitted. This procedure in construction is mentioned as the "Lesbian canon".*

Of particular importance for the architecture of the Mycenaean epoch are the tomb structures. The oldest form of tomb in Crete as on the mainland was the cell or chamber, cut in the rock or built of masonry. The royal tombs of Cnossos consisted of several rectangular chambers, vaulted in the manner represented in Fig. 59. But in Mycenae in the second thousand years originated those great domed tombs, which by their monumental treatment represent a new architectural type, of similar importance as the Egyptian pyramids and the tumulus tombs of the Lydians. They are preserved in greatnumbers as subterranean domed circular structures with walled access (dromos), entrance doorways, and in the larger designs with also a sep-

separate small tomb chamber in addition to the principal room. The best known example is presented by the great domed tomb of Mycenae, formerly erroneously termed the "treasury of Atreus", with a clear lower diameter of 47.9 ft. and a height of 43.6 ft., vaulted in the form of a pointed arch with horizontal courses of masonry, diminishing upward and with projecting angles cut off.(Fig. 68). In these domed tombs were not only found fragments of columns (Fig. 63), but likewise utensils, arms and ornaments with rich decoration, on which are frequently expressed reminiscences of oriental civilization and influences of the native highly developed metal work.(In the frequently employed wire spirals and rows of rosettes). The treatment of the animal figures and the face masks masterfully wrought in gold plate exhibit an extremely assured perception of nature.

The climax of Mycenaean art is to be placed at about the middle of the second thousand years B. C. With it also indeed coincides the era of magnificence of that elevated heroic age, of which an unexcelled and living general picture is given to us by Homer in his poems, whose charming descriptions of the former citadels and royal palaces have been substantially justified by the excavations.

3. Classical Grecian architecture.

A. Temple architecture.

I. General arrangement and system of construction.

In the Mycenaean period the architecture of citadels and of palaces stood in the foreground of artistic activity. Temples were still unknown. Offerings to the gods were made in the open air on altars, erected in the middle of an enclosed and consecrated area. Only after the Olympic gods had received human forms in the heroic poems, and were worshiped as statues, appeared the necessity for also building for them suitable dwellings. The direct prototype therefor was found in the ancient Grecian royal palace, whose arrangement of the interior determined the arrangement of the griund plan of the temple.(See Fig. 58). So this also received a portico open in front and with a colonnade. The megason became the cell, the living room of the deity. The passage existing in the plan

of the palace of Tyrins around the men's apartment finally d developed into the enclosing open portico. By a stepped substructure was the temple elevated above the earth and thereby characterized as the house of the deity. The altar for offerings remained in the consecrated precinct (temenos, peribolos). To this usually led a special gateway (propyleion).Thereby was attained the typical ground scheme for the Grecian temple. But with it was also transferred the entire procedure of the ancient native style of architecture; the walls of half timber work with airdried bricks or rubble, the wooden columns, the horizontal ceiling of trunks with a coating of clay; only gradually did it attain to an ideal corresponding to the dignity of the deity, an evolution brought to the highest perfection. The Greeks recognized in temple architecture their highest problem; in it matured the entire Hellenic style of architecture.

In the course of the 7 th century the Grecian temple attained that perfected form, in which the earliest monuments have been preserved to us, thanks to the durable stone finally employed as the material. From the preceding stages of development many important finds have been brought to light in the most recent period, which in connection with the writings in antiquity afford a partial view of the different intermediate steps. Accordingly there were originally temples, that were entirely built of wood after the example of the framed houses in design, and further those with wooden columns, and again others, on which the wooden timbers were covered with terra cotta (burned clay). About the end of the 7 th century was
61 attained the developed stone construction. Since a model for the Grecian temple nowhere occurs among the civilized nations of the ancient world, it appears as the absolutely original creation of Grecian intellect. The artistic centre is formed by the columns (styloi), carried to perfection of form. Surrounded by columns and supported by columns, the house of the god stood in its enclosed sacred precinct, as the most dignified and exalted offering of the Hellenes to the Olympian deities.

The simplest form of plan, the ante temple (templum in antis), enclosed the rectangular interior of the temple (naos, cell)

for the reception of the statue of the deity, and the portico (pronaos) with two columns on the facade(Fig. 66 a) between the side walls (antes, parastades) extended beyond the front wall of the cell. By the arrangement of such a portico at t the rear end also (rear portico, opisthodome, posticum) originated the double ante temple. If columns stood in place of the antes, thus occupying the entire breadth of the facade, the temple was termed prostyle, or amphiprostyle with the same arrangement at the rear end also.(Fig. 66 b). A particularly rich development was imparted to the temple by a colonnade extending around it (peristyle). If a passage formed by a single row of columns (pteron, wing) extended around the cell, the temple was then named peripteral (Fig. 66 c), or dipteral if with a double row of columns. If the cell walls were attached to the row of columns, so that these only formed half columns, this originated the pseudoperipteral temple. (See Figs. 139, 140, 166). If the inner row of columns in the dipteral temple was omitted, so that the passage became twice as wide, the temple was then termed pseudodipteral. By monopteral is understood a round temple of circular form (rare among the Greeks but common among the Romans), which may again be characterized as periptera, (See P. H. in Fig. 96), dipteral etc.

Likewise according to the number of columns on the facade was the temple particularly designated as tetrastyle, hexastyle, octastyle or decastyle, i.e., with four, six, eight or ten columns. For the number of columns at the side of the peripteral temple appears as a rule a ratio to the facade columns of 6 : 13 or of 8 : 17, the angle columns being reckoned each time; yet this was not invariably retained (the temple on Egina had 6 : 12 columns, the temple of Poseidon in Paestum 6 : 14, the Heraion in Olympia 6 : 15, and the temple of Zeus in Akragas 7 : 14). In the more important temples the cell received two rows of smaller columns for the support of the internal ceiling. Thereby the temple interior appears divided into a middle and two side aisles.(Fig. 67 a). The arrangement of a colonnade in the middle of the cell is rare. (So-called basilica at Paestum).

In regard to the period of development of the forms of the plan, the fact deserves consideration, that all large temples remaining to us in Greece, as well as in Asia Minor and Sicily, exhibit the peripteral plan, from which it proceeds, that this most perfect form of the temple was already common in the early period.

The exterior of the temple (Fig. 68) commences with a bold terraced substructure (crepidoma, stereobate), which is chiefly divided into three or often more steps with a height of "more than a human stride". For the entrance is usually on the facade a flight of ordinary steps, either cut for the entire width or placed before 1 to 3 intercolumniations. From the upper surface (stylobate, support of columns) rise the columns and the cell walls.

As free supports the columns receive the load of the entablature and roof and transfer this to the solid substructure. Thus they resist the pressure acting from above, a requirement by which their entire form treatment is determined. By this structural idea taken as the basis of the column is produced a spirited and esthetic impression. It was therefore first necessary to strengthen and enlarge them comparatively at both ends, at which they received the load and also where they passed this to the substructure. Thus originated the head of the column, its capital and the base or foot of the column.(
63 (The base is wanting for the Doric order. Fig. 69). But the shaft of the column also receives a form derived from its static function. Since the load supported by it increased downward with the weight of the column itself, its cross section is enlarged toward the base, the shaft thus being diminished upward; it thereby produces not only a feeling of assured stability, but also that of a certain ease, with which it opposes the load of the entablature.(Fig. 69). But this diminution does not follow a rigid straight line, but an elastic line slightly curved outward. and that exhibits the greatest curvature at the places, where the column, if it consisted of a flexible material, would bend under an overpowering pressure. The shaft of the column thus receives a slight enlargement ((entasis). In order to more strongly emphasize the upward

resistance, the shaft does not retain its unimpressive round form, but it is animated by flutes (channels, rhabdosis) rising vertically, between which are left sharp edges or fillets. (flats). Thereby is not only the eye led upward and thus in the direction of the forces, but the shaft of the column also seems a composite of firmly connected bands stiffly stretched between base and capital, as the strong bearing ribs of a condensing mass. Thus the column with its base and capital presents the visible representation of a perfected support, that can neither be pressed into the ground nor forced into the entablature, and which also indicates in the shaft the elastic and active force, by which the weight of the load is indeed received, but is borne with great security.

Besides the columns appear further the antes and cell walls as bearing structural parts. Therefore they likewise receive base and cap members, the antes as front piers terminating t the walls having a flat moulded base, a similar capital and generally plain shafts with the thickness of the lower diameter of the column, the wall having one or two but slightly projecting plinth slabs and a crowning band as the upper termination. In certain cases are the cell walls and antes also diminished like the columns. An opening in the cell walls o occurs only by the great entrance doorway extending nearly to the ceiling of the interior, which exhibits an architectural enclosure and cap.(Fig. 102). The doors themselves were of bronze, often entirely or partially gilded.(Windows in Grecian temples occur only on the Erectheion. They have architraves like the doorways but no crowning caps). Through the latticed transom of the doorway also occurred the lighting of t the interior. Under the bright light of the south this sufficed for the worship of the deity, for which a dazzling light was unsuited, also the more since the temple was orientated, i.e., extended from west to east with the entrance end toward the sunrise. The earlier assumption that most large temples contained a light court left open in the ceiling of the cell no longer passes as sufficient; in any case such "hypæthral temples" formed rare exceptions.

The columns together supported the external stone entablat-

entablature. This is composed of three parts, the unbroken architrave (thrinkos, epistyle, under beam) extending above the capitals, the richly decorated frieze (zoophoros, sculpture bearer) and the widely projecting main or crowning cornice (geison, corona). The uppermost member of the latter is the cyma or crown moulding in which the water from the roof is collected and led to to the ground through the waterspouts, mostly shaped like the heads of lions.(Fig. 75).

The roof is treated as an inclined gable roof rising from the cymas of the two longer sides with the low inclination of 1/7 to 1/8 the width of the temple, with pediments at the front and rear. It was constructed with wooden rafters, on which were laid large flat tiles (imbrices), that were originally of terra cotta, but later in the richer development were made of marble in the same form.(Fig. 70). The side joints were covered by concave tiles (calypteres), the rows of which terminated at the ridge in ridge tiles of special form, and ended below at the cyma in antefixas. Ridge tiles and antefixas were ornamented by vertical palm leaves (antefixas).

The pediment (aetos) formed at the front and rear by the inclination of the roof was developed into the chief portion of the external architecture. The geison rises to its apex, inclined like the rafters and at the same time terminating t the roof on the facades. Great gable and end ornaments (acroterias) stand on bases (plinths) and accent the main points of the pediment.(Fig. 71). Likewise vases, animal and human forms occur at these places.(Fig. 75). In the recessed surface (tympanum) of the pediment the richest and most carefully conceived and treated statuary ornamentation finds its place.

The connection of the colonnade and stone entablature with
65 the temple cell is made by the portico ceiling, the upper enclosure of the external portico.(Fig. 72). It consists of s stone slabs with recessed intermediate panels (coffers, cassions) with a broad framework of stone beams, that rest on the architrave and the cell wall, and whose intervals are covered by ceiling slabs with coffers (calymmatias) or by perforated slabs.(strotera). In the latter case the different openings are closed by small stone slabs, that generally received a

painted star. The side surfaces around the coffers are enclosed by decorative mouldings.

No remains of the ceiling of the cell over the interior of the temple have been found. From the stories of numerous burnings of temples, the descriptions of the late Greek authors, as well as from the impossibility of spanning the middle aisle of the larger plans with stone beams, we may conclude with certainty, that these ceilings were constructed of wood with divisions into panels like coffers, which were adorned by colored terra cottas, gilded metal coverings, mosaic (inlaid) work and painting. For the floor were at first employed slabs of ordinary stone, then marble slabs, and finally mosaic pavements composed of polychrome stone bars in ornamental and figure designs.

As the material was generally selected crude marly limestone (poros) in the first period, but later usually marble. The construction was excellent. To secure an absolutely clean j jointing of the ashlars and architectural members, they were finished on the abutting surfaces with a carefully smoothed contact margin, being sunken between these, and firmly connected together by iron dowells and cramps without mortar. For shafts of columns, if not made of a single block (monolithic), they were composed of several layers (drums), the flutes being cut at first only on the lowest and highest drums. The drums were then set with wooden dowells in their axes, and the flutes on the shaft were executed later.

Thus the Grecian temple appears to us in its perfection as a well conceived organism, brought to the ideal personification of an elevated idea, in everything worthy of the deity, for whom it was to be a dwelling.

II. The Architectural styles. Columnar orders.

For the artistic expression, the architectural form treatment, three different conceptions originated from the Grecian spirit, three varied styles, that came in their basal evolution from the three great Grecian races, the Dorians, Ionians and Aeolians, so that Doric, Ionic and Aeolic architectural styles are to be distinguished. The latter appears to have passed into the others in the 5 th century. On the other hand, a new style form appears at that time, the Corinthian.

The native country of the Doric style is the Peleponessus. From thence it already extended very early into the Greek colonies, and just in them, especially in Sicily and lower Italy, have more memorials of its original form remained, than in t the mother country. The time to which these creations extend back, may only be given in general outlines. It is to be assumed as certain, that the Doric style was derived from the wooden structural style, that even at about the end of the 7th century were built temples, on which are found no expressly Doric forms, and that only in the course of the 6 th century did the Doric style of architecture free itself from the effects of the wooden architectural style and ancient oriental influences, receiving a treatment solely and alone based on stone as its most primitive material. In the entire evolution from the first monuments to the later and matured buildings, there appears a progressive transition from heavy, massive and weighty forms to a lighter and elegant treatment.

The Doric column (Fig. 69) from the first does not require a base for its stumpy form, strongly enlarged downward. Its shaft stands directly on the stylobate and is not exactly vertical, but has a scarcely perceptible inclination toward the cell wall.* It has a height of 4 to 6 lower diameters and is channeled by 16 to 20 (20 as a rule) flutes of flattened circular or elliptical cross section, that intersect in sharp edges. At its upper end is formed the necking(hypotrachelion) by a deep annular incision (there are frequently three), which in the earliest period (Fig. 72) has a scotia decorated by a series of leaves (an imitation of the hollow on the Mycenaean capital), later with several annulets (annuli) surrounding the shaft, and passing into the capital (Fig. 74. This consists of an annular round, the echinus, strongly receding below and slightly above, whose section is characteristic for the general effect of the temple, and yields very important evidence for the period of its erection(compare the illustrations previously mentioned), and the square cap (abacus). The ante piers are mostly without bases and have a very slightly projecting necking decorated by a palm leaf band and a but slightly projecting capital with an echinus having the section

of the overhanging moulding (cyma). In the entablature (Fig. 75) the vertical movement introduced by the columns is at first interrupted by the plain undivided architrave, only crowned by a narrow band (taenia) as a neck-band, but on the contrary, it is again resumed in the frieze, subdivided and thoughtfully transposed in the horizontal structural member. The ends of the internal cross beams resting on the architrave project a little, and the visible surface has two vertical channels with chamfers at the sides, which by the form recalling scalloping refer to to wooden construction. They have received the name of triglyphs (three grooves). The approximately apparently square intermediate panels (metopes) are closed by stone slabs with ornament in relief or painted. On the architrave the triglyph motive ends below in the so-called regula and drops, a narrow band hanging from the taenia with six drops (guttae). The triglyphs lie on the axes of the columns and over the middles of the spaces between them(intercolumniations). Yet conversely the setting of the columns is again influenced by them, particularly at the angles. If the outermost triglyph were also placed on the axis of the column, a half metope would be produced, an arrangement later common among the Romans and in the Renaissa-
68 nce (See Fig. 127). But the Greeks either set the triglyphs at the outer angle, which gave a greater width to the angle m metope (See Fig. 75), or they gave uniform dimensions to the triglyphs and metopes, setting the columns accordingly, which moved the angle columns back to correspond. Likewise abowe on the geison, the triglyph motive is continued in the mutules ((viae) indicating the undersides of the rafters, the slabs sl-slightly projecting from the inclined under surface of the geison, each with six cylindrical or conical drops. In these fully reappears the vertical force effect and movement introduced by the columns. These mutules naturally are wanting (in Grecian art) on the inclined pediment cornice; but on the contrary the cyma bordering the roof is also retained there as a crowning member.

** Whether this slight convergence of the axes of the columns, which only appears on Doric temples, was arranged for static, esthetic or other reasons, has not yet been proved with certainty.*

The ratio of the height of the column to its lower diameter substantially determines the basis of the form treatment and the general character of the temple, but it varies much in different examples, as shown by the Table on page 75. On the other hand the other dimensions chiefly remain within certain quite simple numerical proportionsl that usually recur, both in the arrangement of the ground plan and in the members, so that a constant similarity of the different parts is preserved, and the entire building appears as an animated organism most carefully considered and finished in the smallest details. Thus the Doric style in its severe subordination of every architectural member to the whole presents a perfected representation of the Doric state, in which the individuality of the person wholly merges in the entirety.

At the same time, when the Dorians in the Peloponessus and in their colonies brought Doric architecture into full development and perfection, the Ionians in Asia Minor develeped their own architectural style, named after them the Ionic style. With the animated traffic of the Ionians with the European nations direct influences of oriental art appeared among them, which found expression chiefly in the formation of a separate base from the stone support of the wooden column, appearing directly in the earliest Cypriote buildings, and further in the adoption of the volute (scroll, spiral) forms in the capital, already found among the ancient Hittites and Assyrians, as well as in the greater flexibility and lightness of the en-
69 tire structural system. From the beginning stage of the evolution have remained to us only a few fragments, besides the rock-cut facades of the tombs in Lydia and Caria, which still exhibit the Ionic type of base and capital in a very clumsy manner. Transferred to Attic soil, the Ionic style attained its noblest development, but also with a peculiar treatment of certain architectural members. In comparison with the Doric order the following changes occur.

The Ionic column (Fig. 76) commences with a base composed of several members.(Fig. 77). In the Asian form (B) these consist of a square (rarely polygonal) base (plinth), a high annular concave moulding (trochilus) with encircling rounds, and

a horizontally fluted round (torus). The Attic Ionic form (A) has a lower large torus, a hollow (trochilus) and a smaller torus of less projection without a plinth. The latter form was determinative for the entire architecture of the succeeding t times. The shaft is more slender than the Doric (height = 8 to 10 lower diameters), less diminished, has a very slight entasis, and is channeled by 24 flutes of semicircular section and ending in semicircles, between which narrow bands (fillets) remain; it stands accurately vertical. The transition from b base to shaft is formed by a reduction like a cove (anlauf at bottom, ablauf at top), with a similar enlargement from shaft to capital. The capital in its simplest form is composed of a bold volute member, curved in elastic outlines, showing at the middle the greatest flexure upwards.(Fig. 78). For the r richer form (Fig. 81) the volute member rests on an enlargement of the shaft like an echinus, decorated in relief by a pearl bead as a neck moulding (astragal) and an egg-and-dart moulding; it bends downward at the middle, as if it were composed of a soft material like a bolster. A lower abacus, decorated by eggs-and-darts or a cyma with leaves, completes the capital. In details in the **Attic** Ionic style of architecture are found varied treatments, the most perfect being on the Erechtheion.. (Fig. 80). The spirals were drawn free hand and without the assistance of compasses.

By the adoption of the volute bolster in the Ionic capital, this acquired a side elevation entirely different from that of the front or back. Consequently its use on peripteral buildings, particularly on angle columns, presented important difficulties. Men sought to overcome these by making special angle
79 capitals, on which the side was treated like the front, whereby the volutes meeting at the angle formed a scroll strongly bent outwards.(Fig. 83). In order to free the Ionic column f from every limitation in its use, the so-called diagonal capital was finally constructed, showing the same elevation on all four sides, with volutes curved outward at the diagonals of t the abacus.(Fig. 79). This capital already occurs early (apparently in the 4 th century), but it still remains exceptional beside the stronger and earlier form. By the Hellenic masters

the Ionic column was never employed in the peripteral arrangement, but only between antes and in interiors.

The capitals of the antes (Fig. 88 b) have no volutes, but merely mouldings decorated by hearts, leaves and pearls. The base is formed by the Attic base, whose section also extends along the cell walls as a base moulding. The walls are sometimes subdivided by wall piers (pilasters), slightly projecting vertical wall bands having the width of the lower diameter of the column, base and cap mouldings, that are continued along the walls. Besides columns the Ionic style also employed as free supports square piers (propyleion at Priene) on bases with sections like those of columns, shafts diminished like t the columns, the capital with small volutes peculiarly treated and with rich ornamental decoration. The free support rises to the highest artistic magnificence in its transformation into the human figures, the so-called caryatids, for which the maidens (korea) on the Erechtheion as supporters of the entablature, present the most famous example of classical beauty of form.(Fig. 89).

On the Ionic entablature the architrave is subdivided into three slightly projecting offsets, recalling the board covering of wooden construction, and has a crowning terminal member.(F Figs. 81, 83). The frieze extends as an undivided beam; it bears rich figure decoration. The transition to the main cornice is formed by an egg-and-dart or heart-leaf moulding with a pearl bead.(Fig. 82). The main cornice for Attic buildings as a rule is treated as a bold geison, with a strongly undercut water drip on the under surface (to prevent the rain water from running back to the frieze) and an echinus moulding as t the upper border. On the smallest monuments in Asia Minor (Fig. 83). a dentil band appears between the frieze and the geison, and judging from the Lycian rock-cut facades, this was transferred from the projecting ends of the ceiling beams or strips of a formerly wooden architectural style to stone construction.(Figs. 39, 40). On the inclined pediment cornices the dentils are omitted. The crowning termination is composed of the crown moulding, the moulded cyma decorated by a band of palm leaves (anthemion). In the ceiling the motive of the cof-

coffers in subdivisions and ornamentation produces a bolder a and richer effect. All cymatiums, Ionic and Lesbian, are decorated in recief, similarly to the ornamentation of the cyma. (Fig. 102). The different members, in comparison to the severe organism of the Doric order, still appear with all harmony of the parts to each other to have far greater freedom and independence. Likewise the arrangement of the columns is in nowise dependent on the frieze. Therefore the Ionic style represents a considerably richer and more easily applicable architectural system than the Doric.

The Aeolic style.-- Our knowledge of Grecian architecture was enlarged in unexpected measure in the most recent time by the researches of R. Koldewey on Attic soil. The ruins of a temple of ancient Neandria discovered in the Troad in the year 1889 yielded a peculiar form of capital, unknown previously. (Fig. 84). It consists of a band around the column and is decorated by recurved leaves in relief, a round lying above this, treated as a cymatium closed at both sides, and a volute portion, whose spirals are not developed from a horizontal cap, b but appear to grow vertically from the shaft of the column. (Perhaps this refers to two different capitals, one formed as a volute portion, the other with a circle of leaves with a round). The entire form treatment indicates a connection with Asian and particularly with Persian forms.(Fig. 33). The temple itself indeed dates from the 7 th century. It consisted of a walled cell on a high substructure, which was apparently surrounded by an open portico (6 × 11 columns) and was divided into two aisles by a colonnade, like the so-called temple of the 6 th city of Hissarlik - Troy and the so-called basilica at Paestum. The columns had smooth round shafts, strongly diminished, that stood on the ground without bases. Other peculiarities in style could not be determined. Also at Columdado on the island of Lesbos and even on the Acropolis at Athens were found fragments of this capital with the remains of the antepersian period. It is repeatedly represented in architectural views on vases. Thus we do not stand before an isolated work, but before a peculiar style form developed by the Aeolian race, from which indeed so far remains only this one

characteristic form of the column. We strikingly find no reference to this Aeolic style in the later writers. It probably originated in the 7 th century under oriental impulses and was developed in a closely restricted domain, but in the 5 th century under the influence of the Hellenic art spirit, to which this construction did not correspond, again disappeared. It never attained the importance of the Doric and Ionic styles.*

* *The view expressed on the other side, that the form of capital found in Neandria only conceivesa a kind of sport of the Ionic capital, I am unable to accept, since that form evidently came from an entirely different conception in art, than the Ionic capital; likewise it cannot be introduced without innate contradiction into the organism of the Ionic order, even in t the earliest stage of its development now known to us.*

In the second half of the 5 th century appeared an innovation of great importance to Grecian architecture in the evolution of the Corinthian style. With the refined feeling of the Greeks for form and the progressive development of their art into classical puritymust gradually appear the need of obtaining a form of column, that is freed from restrictions and the limitations in placing the columns of the Doric and Ionic orders, permitting a general use and giving opportunity for the richest development of forms. This aim was attained by the formation of a new capital with the introduction of plant motives in its architectural treatment. The invention of this capital was attributed by the Roman architect and writer on art Vitruvius to the sculptor Callimaches of Corinth (about 431 to 404 B. C.). He should then have been the first, who took the bell form as a basis and enclosed it by a series of upright leaves from which arose scrolls, that were coiled like volutes beneath the abacus. Actually this capital is also found for the first time in its complete development on monuments, that owe their origin to about that time (on the temple of Apollo at Bassae near Phigalia about 430). An earlier use by the Greeks cannot be proved with certainty. The basal form of the Corinthian capital was already prefigured in the second t thousand years B. C. in ancient Egypt with the use of the plants native there.(Fig. 19). But the Greeks sought in their

own flora and adopted the broad, soft, toothed, thistle-like ribbed leaves of the acanthus (bear's foot), conventionalized in combination with scrolls, and thus created a new element f for ornamental art, that in sequence became the basis of the entire ornamentation of the antique and of the art influenced thereby.

The Corinthian capital was treated in two main forms. Each of them is composed of a pearl bead as a neck ring (astragal), a flower bell expanding above this,and the abacus. In one and the simpler form, the lower half of the bell is covered by a series of eight acanthus leaves with recurved tips and growing out above the astragal, in the upper portion being twice as m many sedge leaves, that sprout forth from the astragal behind the acanthus leaves, their points extending to the underside of the abacus.(Fig. 85). The other and more common form has two rows of unequal height, eight acanthus leaves in each, from which grew eight strong scroll stems, which in pairs form volutes beneath the angles of the abacus, and thus in the happiest manner cover the underside of the abacus projecting beyond the curvature of the bell, at the same time strongly expressing the motive of support.(Fig. 86). The abacus itself is square in the earlier and simpler form, but in the later is strongly incurved at the middle, generally with the angles cut off and always moulded. Thus was obtained a form of capital, that embodies static life in a wonderfully rich effect, and as a result of its similar treatment on all four sides, permitted the entirely free employment of the Corinthian column for peripteral plans.

The remaining architectural members of the Corinthian column (Fig. 87) are taken from the Ionic, but are still more richly and carefully treated and decorated. The base of the column consists of the Attic Ionic base, mostly with a square plinth. The shaft is like that of the Ionic column and is indeed monolithic (of one stone) for small dimensions, composed of drums for larger ones. Of the care with which these drums were connected together in view of the slenderness of the columns, the construction with dowells is characteristic; two or four iron dowells were let into the upper bed of each drum near its mar-

margin (at a distance of about 1/3 of the radius) and set with cast lead. Afterwards the next drum, when the dowell holes h had been drilled in its bottom surface to correspond was set, and then through a small hole drilled from the outside, the upper dowell hole was entirely filled with lead, in order to ensure an absolutely solid connection of the dowell with the upper stone. The antes and pilasters are imitated from those of the Ionic order (Fig. 88 c), as well as the entire entablature. The frieze in some cases exhibits a notable innovation, in that in place of its front visible plane surface a curved one o occurs, either swelled in section like a flat circular segment, or with the elastic movement of a vertical ogee. In this case the frieze remains without ornament. The main cornice was finally developed further into the cantilever (bead end) and the modillion (console) cornice, when above the dentil band was i inserted a separate structural member, to which was given the form of the lower beam ends or consoles with volutes.(Fig. 131). All cornice and moulding forms received an extremely refined treatment, permitted by the excellent material, chiefly white marble. The crowning structural parts, the bordering bands a and intermediate members of the entablature, the capitals of the columns, and even the bases of the columns are frequently decorated most luxuriantly with sculptured ornament. -- In the Corinthian style the fullness of ideal life attains the richest flowering; it elevates Grecian architecture to its highest expression of artistic grace, freedom and magnificence.

Concerning the proportions of the columns to the entablatures the following Table gives more definite data for certain monuments of the Doric, Ionic and Corinthian orders.

(See Table on the next page).

	Lower diameter.	Distance on centres.	Total Height of column.	Height of base.	Height of capital including necking.	Total height.	Height of architrave.	Height of frieze.	Height of cornice	Total height from bottom of base to top of entablature.
	Feet.	← - - - -Ratio to lower diameter of column.- - - - - - - - →								
1. Doric order.										
Temple Poseidon, Paestum.	6.76	2.1 to 2.2	4.3	---	0.48	1.77	0.70	0.67	0.40	6.07
Temple Parthenon, Athens.	6.46	2.0 to 2.3	5.5	---	0.46	2.00	0.74	0.83	0.43	7.50
Propyleion, Athens.	5.12	2.33	5.99	---	0.47	1.86	0.79	0.80	0.27	7.85
2. Ionic order.										
Temple Nike, Athens.	1.74	3.37	8.08	0.49	0.54	2.58	0.90	0.90	0.78	10.66
Temple Athena Polias, Priene.	4.10	2.73	10.8	0.62	0.55	1.88	0.77	0.62	0.49	12.68
3. Corinthian order.										
Tower of Winds, Athens.	1.64	4.87	8.26	---	1.08	1.83	0.62	0.50	0.71	10.09
Monument of Lysicrates, Athens.	1.08	3.10	10.00	0.66	1.45	2.34	0.85	0.66	0.83	12.34

The data here given for the Grecian architectural system and its "columnar orders" however in nowise prevailed for the Grecian masters as fixed and binding rules, according to which t they should proceed with monotonous severity. By differences in the local and contemporary conditions in regard to purpose and materials, by regard to inherited opinions and particular circumstances, considerable variations from the general standard became compulsory. Likewise for purely esthetic reasons, men did not adhere strictly to mathematical accuracy and geometrical severity; they rather sought to soften these by scarcely perceptible variations in the intercolumniations of the columns * and those slight deviations, by which they removed from the continuous horizontal edges, especially those of the entablature, the lifeless impression of a rigid straight line and also gave them an innate life by curvatures. * *

** Also compare page 66 on the proved deviations of the axes of columns from the vertical for several Doric buildings.*

** * Such "curvatures" are now proved on most Grecian temples preserved to us, particularly on those of the Doric order (on the temple of Poseidon at Paestum, they strike even the slightly trained eye, as soon as one is placed in the direction of the two longer sides). With the unequaled perfection of the entire construction of Grecian temples it is indeed not doubtful, that they were intentionally produced as an enhancement of that refined Hellenic art in design, that likewise animated the shafts of the columns by their entasis.*

III. The ornamental perfection.

The endeavor of the Greeks to treat the temple as the highest ideal of formal and artistic perfection, soon led to an intimate connection of architecture with painting and sculpture and to a rich decorative ornamentation of different structural members. Thereby did it not only receive a higher consecration but also an enhancement in effect, by which the artistic expression also received a striking relation to the purpose of the building and to the problems of the architecture. The materials originally employed (poros and travertine) already indicated by their nature the necessity for covering the architectural members with a fine coating of stucco (made of sand, lime and freshly calcined gypsum or marble dust), to which then

with the joy in color native to inhabitants of southern countries, was added a carefully graduated but animated coloring, or polychromy. To the painting practised in this manner men also adhered later, when for the visible architectural members a nobler material, marble, came into use. For the earlier assumption, that a delicate yellowish tone was given to the entire temple, no proofs free from objections have been brought forward. On the contrary, by many vestiges of color on the ruins of temples in the most distant countries, it is shown with certainty, that on the Doric temples the stylobate, the columns, cell walls, the architrave and geison, thus all the main portions of the structure, were white, and thus they were left in the natural color of the stucco or marble. On the other hand certain separate members were treated with color in a harmonious way, the triglyphs and the mutules (viae) of the geison corresponding to them were always blue, the underside of the geison between them and the upper member (taenia) of t the architrave were red, the drops being yellow or red. The metopes as a rule then merely received a red or blue ground, if such appeared necessary to make prominent the relief ornamentation. On the capitals of the columns usually only the annulets exhibit a red coloring; the echinus but rarely appears in the form of a series of leaves with recurved tips. So much more richly was the ante capital treated. Also the interior acquired a harmonious animation by a colored treatment of the walls, the ceilings and the different members. As color hues were merely blue, red, yellow and gold, and for foliage ornaments green also sometimes came into use.

Likewise on Ionic and Corinthian temples were shown vestiges of the polychrome treatment of certain structural members. Men apparently followed there the same principles, that may be recognized on Doric buildings, particularly in the later (Hellenistic) period, in which unusual richness in variegated kinds of marbles was developed in covering the walls, and bronze ornamentation was added to enhance the effect, when even capitals were made of bronze and gilded, a broader field must have fallen to polychromy. In the animated coloring, by which men gave an ideal ennobling even to sculptures in relief (the so-

so-called sarcophagus of Alexander etc.), we have the best examples of this.

To what a climax of the purest art the Grecian temples also rose in their sculptures, we may see in that masterly form of a maiden of honor on the Erectheion (Fig. 89), who is fully conscious of her high service, full of grace and dignity to bear the graceful entablature of the house consecrated to the deity; we see that on the incomparable pediment figures of the Parthenon, which exhibit such an elevated and monumental conception of art and such a pure perfection of form, as attained by no other works of antique sculpture, and that give us an extremely charming picture of the representations of the Hellenes concerning the life of the blessed on Olympus; we see that also on the splendid figure frieze of the altar of Zeus at Pergamon (Fig. 105).

That likewise the monumental paintings with which the interiors of Grecian temples and their vestibules were adorned, were scarcely inferior in their productions to those of sculpture, is already proved to us by those imitations of famous paintings in antiquity, which have been preserved to us on numerous Greek vases, in Etruscan tombs, and in Hellenistic Pompeii.

An important part also falls to ornament in Grecian art and decoration, particularly in the pottery and the minor arts. In its earliest stage decoration bears all the characteistics of a crossing of the tendencies common to many European peoples with the influences expressed by the imitation of articles introduced from ancient Assyria and Egypt. But when these were filled with the Greek spirit, so that the primitive forms were no longer to be recognized, and finally all threads were cut, that could facilitate relations with oriental civilization. The Grecian art spirit manifested itself from the beginning onward in an unusually acute perception of the essential and characteristic, for the proportions of figures and the expression of movement, for schematic conventionalization, and a wonderfully refined feeling, with which they fitted the representations of figures into the scheme of the ornament. The best motives (aside from the architectural decorative members already mentioned) are the fret, the falling wave, interlaced and

rosette bands, palmatiums, flower corollas, scroll forms (Fig. 90) and acanthus leaves, the characteristic treatment of the latter foliage being shown in Fig. 91. The combination and a arrangement of these form elements as architectural ornament (Fig. 91 b) as well as on Grecian vases and on utensils is so well conceived, so carefully weighed and classical, that until the present day it has been accepted as the unexcelled and truly classical model for all ornamental art.

Just as the architectural styles were not developed separately but beside each other, we find them also employed at the s same time and place, indeed frequently on the same building. For example, on the larger Doric temples, if two colonnades above each other were not arranged for the internal rows of columns, so that the side aisles had two stories, a more slender system was generally chosen, and thus of the Ionic or Corinthian order. With the diversity in the character of the different styles, with the change in the political power of the races, from which the came, and also finally with the inequality of the problems set for architecture, it was therefore certain, that the different styles attained their climaxes at different times and entered the foreground, the Doric in the 5 th century, the Ionic in the 5 th and 4 th, and the Corinthian style in the 4 th century and the following period.

IV. The most important monuments.

Aside from the preliminary stages mentioned on page 66, we can assume the real beginning of Grecian temple architecture at that time, in which the formation of states was completed, and the national unity found its strongest expression in the founding of the common festivals, at the introduction of the Olympiads in the year 776 B. C. Thereby classical Grecian architecture commenced its course of evolution, that comprised a period of six centuries, and which may be subdivided in detail into the epochs given on page 54.

1. THE ARCHAIC PERIOD. (776 - 476). -- We find the best preserved monuments of the temple architecture of the early epoch in a great number of temple ruins in the greater Grecian colonies in the west, chiefly being peripteral structures with elongated and narrow cells, frequently with a rear apartment

(adyton) accessible therefrom, the cell single-aisled in the first times, or with a middle row of columns, as at the so-called basilica of Paestum; massive forms in the external structure, the columns with strong diminution and unusually great e entasis, the entablature heavy and not yet fully developed, with uncertain proportions in general (lax archaic style).

a. Doric monuments. -- In lower Italy and Sicily:- at Paestum (Poseidonia) the so-called "basilica", a peripteral building with 9 × 18 columns, and the somewhat later temple of Demeter (Ceres) with 6 × 13 columns; the capitals still with hollows, date of erection about the middle of the 6 th century. In Selinunt (Selinus) stood seven temples, mostly peripteral, among them four of the 6 th century, all destroyed by an earthquake. In Girgenti (Akragas, Agrigent), the temple of Hercules (6 × 15 columns). In Pompeii; the ancient Grecian temple on the triangular forum, pseudodipteral with 7 × 11 massive columns, strongly projecting and swelled capitals with hollow in the necking. In Syracuse, the temple of Zeus and the temple of Apollo in the adjacent island of Ortygia.

In Greece:- the temple of Hera (Heraion) in Olympia, the earliest example of the Doric style still preserved in notable r remains, peripteral with 6 × 16 columns, dimensions of 62.3 × 164.1 ft., originally a wooden structure from the time before 700. The wooden columns were gradually replaced by stone, the oldest capitals still having the hollow beneath the widely projecting echinus. * The temple in the citadel of Corinth (Fig. 92), peripteral, 6 × 15 extremely heavy columns (height about 4 1/4 lower diameters), but on which the hollow is already wanting. The temple on Egina, dedicated to Athene or perhaps also to Artemis, peripteral, 6 × 12 columns, from the beginning of the 5 th century; the columns comparatively widely spaced and slender, but still with archaic projecting capitals; famous pediment group in Munich.

** According to Grecian tradition the oldest Doric temple was the Argive temple of Hera near Mycenae. No certain idea of its plan can now be obtained from the very few remains discovered in very recent times.*

In Asia Minor, the temple at Assos on the Aeolic coast with

6 × 13 columns, whose shafts only exhibit 16 to 18 flutes each.

b. Ionic monuments. -- The earliest work is the temple of Hera on Samos, built in the middle of the 6 th century by Rhoikos and Theodoros of Samos; but vere few fragments of the columns have remained. The same Theodoros also commenced the temple of Artemis at Ephesus, a colossal dipteral structure 246.1 × 525.9 ft. long, with architrave beams 32.8 ft. long, greatly esteemed as the architectural wonder of the ancient world, as its actual builders being mentioned Chersiphron and his son Metagenes, but about a century later was completed by the architect Paionios and the foreman Demetrios. According to tradition this sanctuary was set on fire and destroyed by the act of a demented person, but was again rebuilt by Alexander the Great (see page 88). Near Miletus, the famous sanctuary of Apollo Didymaios (Didymaion), likewise a colossal structure, from which since the destruction by the Persians in the year 492 only the ruins of the mighty seated figures remain, which were placed along both sides of the avenue of access, like the rows of sphynxes before the Egyptian temples.(The temple was again restored after the Persian war. See page 88).

With the religious buildings are also further to be restored the treasuries at Olympia and Delphi; founded as consecrated architectural gifts by certain states, built of native stone as a rule, and erected on the Altis (the sacred precinct) at Olympia and the enclosure of the oracle at Delphi. Already f for this reason and in view of their rich sculptured ornamentation is this a class of buildings of importance in the history of architecture. They have a vestibule with pediment and supported by columns like the ante temples, but already differ from these by their location at right angles to the direction of the temple, since these extended from West to East, but the treasuries from South to North.(See Fig. 96).

2. THE BEST PERIOD.(476 - 338).-- With an event of the highest importance in the history of the world, the glorious war against the persians, Greece enters the magnificent epoch of civilization, whose artistic development never again finds its like in history. After the powerful repulse of oriental encroachment by the sword, there also vanish the last vestiges

the oriental elements from Grecian art forms; Grecian architecture acquires a refined and purely national treatment. The Doric style enters into its full maturity in the Italian colonies as in the mother country. But the centre of the evolution in the history of art lies on the native soil in Athens, just like that of the political history. There Hellenic art rose to the climax of most perfect harmony and beauty. From the Doric style also vanished the last traces of rude and archaic conceptions; it was transferred into gay clarity and the noblest grace. The Ionic style develeped its highest bloom, and soon the Corinthian style also appeared, to enhance Grecian architecture as the most finished and magnificent effect of artistic splendor.

a. Doric monuments. -- In lower Italy and Sicil::- in Selinunt the temples A, B and E, not mentioned on page 79, in Akragas (Girgenti) the unfortunately very ruinous so-called temple of Juno Lacinia, the still well preserved temple of Concordia, peripteral with 6 × 13 columns, the temple of Castor and Pollux, a picturesque angle of which, consisting of four columns with the stylobate, entablature and the starting block of the pediment, with in part the well preserved stucco coating, has been recently rebuilt from the existing remains; the great temple of Zeus, 183.7 ft. wide and 397.0 ft. long, pseudoperipteral with 7 × 14 columns of colossal dimensions attached to the cell walls (a man can find comfortable space in a flute), massive wall piers in the interior, on which (in the upper third) are colossal atlantes (male figures) 26.3 ft. high to support the ceiling; it now only forms a vast heap of ruins. In Segesta (Egeste), a principal structure with 6 columns in front, still standing with its entablature and pediment but never completed. In Syracuse the temple of Athene on the island of Ortygia. In Paestum the great middle temple, sanctuary of Poseidon (Figs. 92 - 95), peripteral with 6 × 14 columns, a vestibule between antes in the pronaos, open opisthodome at the West, cell in three aisles, the side aisles two story (Fig. 93), the upper gallery accessible by stairways. The metopes are equal, the angle columns being chosen to correspond, the architectural treatment still strong and earnest. The temple of

Poseidon, next to the Theseion on the market hill at Athens, is the best preserved architectural monument of the great style from Grecian antiquity. Today it still produces an overpowering and even thrilling effect in the quiet abandoned landscape.

In Greece:- at Olympia (Fig. 96 z), the great temple of Zeus built by a master Libon from Elis, peripteral with 6 × 13 columns, plan similar to that of the temple of Poseidon at Paestum, in its forms still showing the transition period from archaism to the best time. There also the temple of the mother of the gods, the metroon (m). At Rhamnus in Attica two Doric temples of Nemesis, an earlier small ante temple and a hexastyle peripteral temple with 12 columns on the longer side in the most mature Attic Doric style. In Eleusis the temple of consecration (Telesterion) designed for the use of the mysteries by Iktinos about 440. At Argos the temple of Hera, which was erected by Eupolemos on the site of a vern ancient sanctuary about 423 and on a similar normal ground plan. At Nemea the great temple of Zeus, at Tegea the temple of Athena Alea, on Delos the great temple of Apollo, all these being peripteral with 6 columns on the facade, among which that at Tegea is notable, since on it all three columnar orders were employed, Doric in the peristyle, Ionic in the pronaos, and the Corinthian within the cell. At Phigalia the temple of Apollo (Fig. 67 b), newly erected about 430 after plans by Iktinos, peripteral with 6 × 15 columns, but with entrance end toward the North, thus being at right angles to the earlier temple; in the interior five cross walls projecting from the side walls, that end in Ionic three-quarter columns, on the axis being a column with Corinthian capital, the oldest known example. On this temple are found for the first time all three orders. In Athens the so-called temple of theseus (Theseion) on the market place, a peripteral structure of Pentelic marble with 6 × 13 columns (Fig. 97), the best preserved of all Grecian temples.
Its highest and noblest development was attained by the Attic Doric style on the Acropolis of Athens, the city citadel erected on a high plateau of rock about 984.3 ft. long and 426.5 ft. wide (Figs. 98, 99), in the Propyleion and the sanctuary of Athena Parthenos, the Parthenon. The Propyleion forms the

magnificent gateway built by Mnesicles in 437-432, accessible by a monumental wide flight of steps, and consisting of a middle and two side buildings, the central building with hexastyle Doric porticos at the entrance and exit ends, between them the entrance hall in three aisles with two rows of three Ionic columns in each, the two wing structures with open porticos toward the entrance, the left (larger) wing forming the "pinacothek" (picture gallery), the right somewhat smaller on account of t the adjacent temple of Nike. Like all monuments on the Acropolis, the execution exhibits the highest artistic perfection. In the interior of the area of the citadel and approximately at the middle, there stood a Doric temple of Athena, already famous in antiquity, whose cell was 100 ft. long, from which it receive the name of "hekatompedon". It was destroyed in the year 480 by the Persians, but was later rebuilt. About 98.4 ft. South from this a temple dedicated to Pallas Athene was commenced, but this was again torn down under Pericles, after on the advice of the great sculptur Phidias he had given the order to the architects Iktinos and Callicrates, to erect in Pentelic marble on its site a sanctuary consecrated to the maiden goddess Athene. So then from 447 to 434 was erected the "Parthenon" of Pericles (Fig. 100), beside the Erechtheion the noblest monument of Grecian architecture, peripteral and amphiprostyle, measuring 228.5 ft. in length and 101.3 ft. in width on the upper step and with 8 × 17 columns, peristyle, pronaos and opisthodome, the cell with three aisles, each internal row of columns with two Doric colonnades above each other, between the cell and the opisthodome being the proper "Parthenon", accessible from the latter, that either served as another room for worship, as a western cell, or as a treasury for the safe keeping of the national treasures. The columns are comparatively slender and are slightly diminished with scarcely perceptible entasis; the capital has a restrained echinus with almost a straight line as section and a but slightly projecting abacus.(Fig. 74). In the Parthenon Doric architecture reached the climax of the course of its evolution.

b. Ionic monuments:- in Hellas the Ionic style only appeared in the smaller architectural works. But these adopted a s

scale so much greater in the Eastern colonies. On the Acropolis of Athens the little temple of Nike Apteros was built on the extreme southwest projection of the rock of the citadel at the right of the entaance, a tetrastyle amphiprostyle structure of Pentelic marble with a magnificent relief frieze.(Fig. 76). At the middle of the area of the citadel and at its northern margin was the famous Erechtheion (Fig. 161). The uneven ground here led to a charming and picturesque temple design, that was not indeed surrounded by a peristyle, but instead had open porticos on all sides. The main building is an Ionic hexastyle prostyle temple extending toward the East with a cell in three aisles but transversely divided at the middle, the e eastern portion being dedicated to Athena Polias, and the western to the three ancient Attic earth gods, the latter being lighted by three windows raised high in the western wall. The northern wall of this western cell has before it as a portico an open hall with pediment and six columns, from which one entered the sacred room through the beautiful "Erechtheion" portal.(Fig. 102). But against the southern wall is built the small "caryatid porch" with the colossal marble maidens (koren, korai), that support the graceful cornice, only composed of a architrave, dentil band and geison (without frieze).(Fig. 89). The rich capitals of the northern portico are shown in Fig. 80. The whole is an incomparably graceful architectural work of t the highest nobility of form, refined proportions and members, the climax of Attic Ionic architecture.

In Asia Minor, the temple of Artemis at Ephesus, rebuilt by Deinocrates (Cheirocrates) about 350 after the ancient plans but with freer forms (see page 80), on which the columns (as columnae caelatae) had the lower portion of the shaft covered by relief sculptures, manifestly in imitation of oriental covering with metal. Paeonios with the cooperation of the foreman Daphni also entirely rebuilt the great Ionic temple of the Didymean Apollo at Miletus, destroyed by the Persians, as a c colossal dipteral structure (10 × 21 columns, 65.6 ft. high above a stylobate of 13 steps).(Fig. 86). But it was completed in the Alexandrine period. In Xanthos in Lycia the monument of the Nereids, erected on a high substructure as a tomb, a t

temple with 4 × 6 widely spaced columns and double cell with rich sculpture on the architrave; the frieze is lacking. In the Troad, the temple of Apollo Smintheus, pseudodipteral on a high substructure, to which probably led up only a single f flight of 10 steps on the front side. At Priene the temple of Athena Polias, built by Pythios, whose columnar order may pass for a model example of the matured Asian Ionic style. (Fig. 83). It must have been dedicated in 340 B. C. by Alexander the Great, and designates the last stage of the Ionic style of this period.

The Corinthian order found employment seldom in temple architecture during the classical period, and indeed only in the interior of the cell. The earliest monument exhibiting Corinthian columns externally (the Lysicrates monument) already belongs to the Hellenistic period.

3. The Alexandrine or Hellenistic period. (338 - 146).

With the begining of the Macedonian supremacy fell the political greatness of Greece. The misfortunes that closed in upon Athens from the Peloponnessian war and its consequences had a destructive effect upon all political life. The people lost ever more the faith in the gods, already shaken by the new philosophical ideas, and thereby its high ideals. The once strongly expressed national consciousness receded, and the existence of the state also lost its most important basis. National festivals were indaad held, but no longer to serve the gods, but only to satisfy the love of the people for enjoyment. No longer was it the state as such, from which art received its great monumental problems, but the need for show of the princes and the great of the land. But there also occurred a loss of the art principles striving for clarity and purity. The Doric style declined. The columns became very high and slender. On the shafts the flutes are omitted on the lower third. The capital becomes strikingly small as treated subordinately. The echinus has no longer any force; it has a straight line section. Even the entablature seems too low. The triglyphs are now only ornamental members, that were even arranged above Ionic columns.(Fig. 103). Soon are found mixtures of styles of all kinds. In the place of the ancient Ionic capital chief-

chiefly occurs the diagonal capital. The Corinthian capital is sometimes even enriched by figure ornament. Even oriental forms of columns and capitals (the Egyptian palm column, the Persian bull capital, Figs. 19, 33) intruded. The frieze was frequently swelled. In certain cases (on the great harbor gateway in Ephesus and the theatre in Termessos) the columns even became purely decorative, were placed before the wall surfaces with returned entablature.

After the political collapse of Greece, Athens enjoyed for a long time the favor of the new rulers. These did not desire the subjugation of the brave Hellenes, but they recognized the elevation of their civilization, and sought to acquire it and make it useful. Thus Grecian culture and Grecian art flowed out to the farthest limits of the immeasurable domain; so did it become the common property of the civilized peoples of every time. Hellenism civilized the world. Once more the Grecian spirit awoke in the architects of the new kingdom to new artistic great deeds. But the soil for this was no longer found in the mother country, but in the Asian and African possessions, particularly in the kingdom of Pergamon, and in the free state of Rhodes, that attained great wealth by its commerce. Different were in those provinces the basal opinions, the requirements and the means; but the artistic expression must also become different. Grecian architecture as such decayed. The severe restraint of its form must yield to a freer use and treatment. New materials were adopted by the native traditions of the provinces. Freed from the ccompressing orderliness of the system, enriched by new expedients, Grecian architecture received that universal character, which rose to a world language of art, which reacted in the Roman, Byzantine, Romanesque and Renaissance art until the architecture of the most recent period.

Monuments:- with the great flight of architectural activity temple architecture did not make equal progress; it visibly receded in comparison with the problems of secular art. In Athens M. Cossutius (about 175) erected on the site of an older temple the Olympeion, octagonal Corinthian dipteral, and next to the temple of Artemis at Ephesus the largest of all Grecian

temples. It never came to completion. There yet stand of it 15 columns, that with their height of 55.8 ft. filled the observers with astonishment in ancient times.(Figs. 87, 104). The period developed its chief activity in Asia Minor. In the ancient Grecian form of the rectangular peripteral temple, Hermogenes,an architect of genius, erected about 200 B. C. the third largest Ionic temple of Asia Minor, that of Artemis Leucophryne at Magnesia, a nobly developed pseudodipteral building on a stylobate of seven steps, as well as a stately hexastyle structure, the temple of Bacchus in Teos. But elsewhere the round temple was preferred; such most promising works are: the Philippeion in Olympia (P.H. in Fig. 96), a circular peripteral building founded by king Philip in 337 - 334, on a stylobate of three steps with 18 Ionic columns in the peristyle, the internal wall of the cell subdivided by 9 Ionic columns; the beautiful circular building in Epidauros (the so-called "tholos"),; the sanctuary of Asclepios with external and internal colonnades and extremely rich ornamentation (Fig. 91 a); on Samothrace the Arsinoeion, a two story circular structure dedicated to the great gods, with a plain substructure only broken by a doorway, and an upper story subdivided by 44 pilasters.

With the religious buildings of the Hellenistic period are reckoned as its most original creations the altar structures, of which the altar of Zeus at Pergamon presents the most splendid example.(Fig. 105). It was a monument of the great style, erected about 180 B. C., consisting of a massive substructure 123.7 × 113.1 ft. in area and 29.5 ft. high, which a magnificent stairway of 24 steps and 65.6 ft. wide intersects. This led to a platform, on which stood the altar of burnt offering under the open sky, and enclosed on three sides by Ionic porticos (entirely around according to other restorations). Around the substructure and on the sides of the stairway extended a sculptured band 7.6 ft. high, representing the combat of the gods with the giants, that is to be counted among the most magnificent works of late Grecian sculpture. -- Of the Hellenistic buildings of lower Italy, we have mentioned the temple of Apollo at Pompeii on page 133.(Fig. 157).

12 ### B. Secular Architecture.

During the entire archaic and the best periods the temple f formed the chief problem in Grecian architecture. But in the course of the 5 th century secular architecture, which had previously moved within very restricted limits, also commenced an increasing development, until its works rose to be real art b buildings and in the Hellenistic period occupied the foreground of artistic interest. With the high importance of the great national festivals and the dramatic performances there produced, contests and combats open to the world, all these received a careful treatment, that were designed for holding these and for the preparatory exercises, i.e., the theatre and the odeion for the dramatic and musical performances; the stadion as a race course for the youths competing in running, the hippodrome as a race course for horses; the gymnasion and palaestra as schools for the exercise of the youths.

In the 5 th century the founding and the building of cities took an unusual upward flight. In them are found as continually recurring forms of buildings, the buleuterion or council h houses, the prytaneion or state palaces, and stoas, i.e., porticos surrounding the markets as walking places, accompanying the course of entire streets, also frequently serving as lecture halls. Finally the Grecian house also gradually received a typical plan. Even in utilitarian structures the Greeks attempted great works in the often splendidly treated fountain
13 houses and the engineering structures of the partly grand and prominent harbor plans and the fortifications of cities. Among the purely artistic works are further reckoned the monuments executed in honor of certain citizens and the tombs.

The Grecian theatre (Figs. 106, 107) substantially consisted of three parts; 1, a long and narrow stage building, the skene, with two projecting side wings (paraskenion), between which t the proskenion lay; 2, the orchestra lying beneath the open s sky, a circular , also frequently semicircular or more rarely horseshoe shaped level area, with entrances (paradoi) from the paraskenions; 3, the surrounding and rising audience room (theatron, koilon, cavea) with the concentric rows of seats lying behind each other, that were generally diwided into banks by

one or two curved passages (diazomatas, girdles), and were accessible by radially arranged stairway steps.(See plan and view in Figs. 98 and 99). The most important of the extraordinarily large number of remains of Grecian theatres are these:- that known as a model building and completed under the rule of Lycurgos (338 - 326) as the theatre of Dionysos at Athens, from which a portion of the audience room and the beautiful honorary seats represented in Fig. 108 still remain. The theatres at Segesta (Egesta), Syracuse, Aspendos, Epidauros, Priene, Delos, Magnesia, Termessos, and in Hellenistic Pompeii. -- In the vicinity of a larger theatre was also generally found an odeion, imitated from the theatre in smaller dimensions and c chiefly intended for musical and lyrical performances.(See plan in Fig. 98 and view in Fig. 99).

The stadion had the form of a rectangle of about 656.2 ft. long and 72.2 ft. wide, constructed in a natural or artificial valley, frequently rounded at one or both ends and furnished with transverse stone sills as marks for the beginning and end of the course. The best known stadions are those of Athens, Olympia, Epidauros and Messene. The hippodrome was similarly arranged but on a substantially greater scale for the racing of horses and of chariots with two wheels.

The gymnasions, originally intended for the physical exercises of youths,were later also institutes for instruction and for their intellectual development, and the palaestras, schools for exercises in contests, mostly consisted of a square court entirely enclosed by porticos and halls, that opened inward. (See P.A. in Fig. 96). With the gymnasions were also connected bathing arrangements, but which there only served for cleansing and refreshing after the exercises. Important gymnasions were those at Elis, Olympia, Epidauros and Assos.

New principles for the laying out of cities were already established in the second half of the 5 th century by Hippodamos of Miletus, relating to the location, direction of the streets, the proper arrangement of the streets, markets and public buildings, as well as for sanitary measures in reference to drainage etc. Numerous new cities were founded, particularly in t the Alexandrine period, and they rapidly became great cities,

among them being Alexandria at the mouth of the Nile, Antioch on the Orontes, which belonged to the most populous and famous cities of the ancient world, becoming models for many others. In Asia Minor rose Miletus, Ephesus, Magnesia and Pergamon, a and in Sicily Syracuse attained great magnificence. Columnar gateways (Fig. 109), porticos and courts with porticos gave to the streets, the markets and the Hellenic cities their artistic impression. The chief attention was devoted to the great marketplaces (agora). They generally had a rectangular plan. The dimensions varied; the marketplace of Magnesia was 616.8 ft. long and 318.3 ft. wide. On them came to its richest development the hall building as a protection against rain and the heat of the sun. Stoas also surrounded the markets, partly as walks, partly as lecture porticos. If chiefly intended for conversation, they were termed lesches (prating halls). The porticos were soon erected in two or more stories, as at the great marketplace of king Attalos II (159 - 138) in Athens. (Fig. 103). Therewith vaulted construction also gradually came more into use. Before this men had employed vaulting with voussoirs in round arches almost entirely in gateways (already after the 5 th century in northwest Greece), for openings for water and over entrances (for example, at the entrance to the stadion in Olympia). They now advanced to the vaulting of the larger rooms, although still hesitating. As the first example of this passes the main hall of the gymnasium at Ephesus, that was covered by three cross vaults (see page 105) and indeed by all probability in the Hellenistic period. The principal entrances to the markets were spanned by monumental gateways. With this is also to be reckoned the Tower of Winds in Athens, an octagonal structure with two small gabled porticos to receive a sundial and a water clock (horologium), and a frieze of figures in relief, representing the demons of the winds, and built by Andronicos from Cyrrhos.

On the great markets the buleuterions also received their places as the locals for the sittings of the state council and the prytaneion, the latter as the state palace of the Greek state, in whose square middle room and surrounded by porticos and halls, stood the sacred hearth of Hestia. The Buleuterion

of Olympia consisted of two two-story halls for sittings and with semicircular ends, together with a middle hall, all these hall structures being connected by a common Doric portico.(See B in Fig. 96).

The royal palace formed an entire quarter of the city. The palace of the monarch received a great peristyle, around which were grouped the rooms for holding the court, always including the throne hall, the chapel and the fountain house. Adjoining these were the chief sanctuaries, the public libraries, the m museum and the like.(Royal palace of Pergamon). A similar plan is shown by the royal villas, which were erected in the midst of splendid gardens in the vicinity of the great cities.

In comparison to the purely decorative buildings, the Grecian dwelling takes a very modest place, chiefly because the political and social life of the men during the best period of Grecian art was chiefly spent on the agora and in the lesches, so that only a subordinate place fell to the wife and family life greatly receded. In the more prominent private houses was retained the separation between the men's and women's dwellings (andronitis from gynaikonitis), already existing in the Mycenaean royal palace. The vestibule open in front (prostas) was changed into the court with porticos and transferred to t the interior of the house, and was treated artistically, while the houses next the street were almost entirely enclosed without any development of the facade. A direct access (thyroreion) led to the columnar court (peristyle, aula) from the street and around this were grouped the rooms (see Fig. 110), among them being regularly a larger principal room furnished with s several windows toward the court (andron, oikos, oecus), and the entirely open or widely opened exedra as a conversation or dining room. In a richer development the women's dwelling lay behind the andronitis, was always only accessible from this and had its own peristyle, which was connected with the men's dwelling by a narrow passage (mesaulos). In the simple house the peristyle was common to both. The dwelling of the women and that of the slaves frequently was in the upper story (hyperoon). The materials evidently consisted of quarried stone only in the foundations, the other masonry being of airdried

bricks, wherefore only very sparing remains are preserved.

A prominent place in Grecian private architecture is further assumed by the monuments, both those erected in memory of an important event, and the tomb monuments. Of the former, the most splendid example is presented by the choragic monument of Lysicrates, erected in the year 334 in Athens. This is one of the monuments, which the choir leaders, the so-called choragoi, were required to build, if they obtained the victory in the p public musical contests. These monuments mostly have the form of a small round temple and are crowned by the tripod, the pr-ize won by the victory. (Fig. 111). The monument of Lysicrat-es is 34.5 ft. high and consists of a square base 13.1 ft. hi-gh of Piraeus stone, and a circular structure of Pentelic mar-ble with a crowning cornice, that is supported by Corinthian engaged columns 11.7 ft. high with capitals of extremely refi-ned and graceful treatment; the whole is one of the most charm-ing works of Grecian art. The tombs in Attica were always sim-ple; on the heaped grave mound as a rule stood a stele (sepul-chral column), i.e., a high and narrow stone slab diminishing upwards and crowned by a palm leaf acroteria with the name and also frequently the relief image of the deceased, a wider tomb-stone for a richer treatment, in which was frequently recessed a niche enclosed by pilasters with moulded pediment (heroon) for a relief slab with the portrait of the dead or a thoughtf-ul figure group.(Fig. 112 b). But in Asia Minor the tomb rea-ched a monumental development. The greatest monument is the mausoleum erected for king Mausolus of Caria at Halicarnassos, a magnificent structure, probably erected by Pythios and Saty-ros about 350, consisting of a massive rectangular substruct-ure 116.8 × 87.9 ft., standing thereon being a temple-like ha-ll with 9 × 11 Ionic columns, and a marble pyramid of 24 steps, which was crowned by the colossal statues of the king and queen with the quadriga (chariot with four horses). (Fig. 112 a). T The substructure and superstructures each contained a circular cell 42.7 ft. in diameter and o5.8 ft. high to the vertex of the strongly raised dome, formed by corbelling out chamfered ashlars (according to Fig. 65). The rectangular sepulchral chamber is 22.3 × 13.8 ft. and 12.5 ft. high and lies beneath

the lower cell. The entrance was walled up. The height to t the top of the tomb cornice amounted to 62.7 ft., that of the columnar order with entablature being 40.0 ft., and of the whole being 140.1 ft. to the top of the quadriga. We see in this monument the last truly ideal transformation and development of the tumulus form, native on the soil of Asia Minor, clothed in the form world of late Grecian architecture.

The entire development of Grecian architecture exhibits to us a wonderful tendency and a passionate impulse to express a spiritual harmony in more beautiful and perfected form. Originally derived from the structural idea, it rose gradually to a perfected space art, in whose individual harmony and beauty the idea of construction entirely disappeared. Thus the Grecian spirit created the basis for a really perfect, an art fully blooming in its external conditions, the classical model, that was nevermore to be excelled in style. When the Greeks had reached this climax, they only retained their political independence for a comparatively brief time. But in the domain of the intellect, they entered on their rule. The overflow of Greece by the foreign conquerors set in motion anew the great stream of civilization from the East, which five centuries earlier had come to rest in the Hellenic lands. It rolled on farther to the West, in order to develop on the western peninsula of the Mediterranean Sea the second great period of antique art, in a new and in many respects a yet richer and more splendid development.

VII. Architecture of the Etruscans.

In the middle and northern provinces of the Italian peninsula, already before the settmelent of the south by the Grecian colonists, the races settled there at the earliest time reached by history had developed their own civilized life. As different as are the climatic conditions of the elongated country, intersected by a high range of mountains, just as unlike were the ancient Italian population in derivation and character. The innate artistic endowment of the Greeks was not native in one of the many races, but so much the greater was the capicity to adopt foreign acquisitions and to work in their sense. The most important place among them was occupied by the Etruscans, also called Tuscans by the Romans and Tyrrhenes by the Greeks. According to their language and their customs they w were an independent people, apparently allied to no other race. But their form of civilization and traditions indicate Asia M Minor as their primitive home, where they stood in intimate relations to the Lydians and the Phrygians. They probably emigrated during the Doric migration, as their most western offshoots settled in the province named Etruria after them, there formed a separate state, extended their possessions ever wider, had subjected Latium at about 700 and Rome about 500, then dominating the entire civilization of middle Italy, but in time were continually forced back in the north and east by the Gauls, in the southeast by the Sabines, Samnites and the Grecian colonists until beneath the storms of the migration of the Gaulish nation and the contest with the Roman people, they entirely l lost their independence in the 3 rd century and also later their national unity, their national customs gradually merging in the Roman. In their religion appeared in the earliest time predominating Egyptian and Babylonian influences, whose gloomy conceptions were but slightly softened by the animated and imaginative ideas of the Greeks. But in the later time the world of Grecian gods gradually found admission among the Etruscans.

The earliest Etruscan architecture exhibits the same basal traits as the Mycenaean. As there is found there Cyclopean masonry in the walls of cities and citadels, both polygonal and in ashlars in massive and most careful execution. (Ruins in Cosa, Cori, Segni, Ferentino, Fesulae, Volterra etc.). The cov-

covering of gateways and interiors occurred in the early period by corbelling out horizontal courses.(Fig. 65). The best known examples of this are furnished by the very ancient Capitoline fountain house in Rome (in its lowest room), and the spring house under the wall of the citadel at Tusculum. Later, from about the 5 th century, and manifestly under Grecian influences (see page 94) was executed the regular voussoir construction in round arches, in which the Etruscans eventually proved themselves skilled masters in their great city walls, their utilitarian structures and bridges. On the so-called arch of Augustus in Perugia (Fig. 113), the carefully coursed ashlar masonry of the substructure (up to the springing lines of the arch) dates back to the Etruscans. The arch and the superstructure above were restored after the destruction of the city by Caesar Octavianus (later the emperor Augustus), and indeed by an Etruscan master, as may be judged from its form treatment. As also on the Porta Marzia in Perugia, the Etruscans here employed the voussoir arch decoratively in an important way, when they enclosed the arch by a moulding. For the public buildings and dwellings was preferred the structural woods, existing in good quality, in combination with airdried bricks and terra cotta covering. Its chief activity was developed by Etruscan architecture especially in accordance with the practical and useful tendency of the people in the domain of secular architecture, particularly in the plans of cities and dwellings. Yet their architecture of temples and especially their sepulchral architecture presents a high interest for the history of architecture.

In a determining way have the Etruscans influenced the plans of the ancient Italian cities, when as already in their pile villages located in the valley of the Po, they based these on a definite network of streets intersecting each other at right angles and orientated according to the four points of the compass. We already recognize in their dwellings the ground traits of the later Roman dwelling.(Fig. 114). They generally have a square middle room (atrium), in which stands the hearth, extended by a wing (ala) at each side, behind the atrium being the living room, also between them being small side rooms, the

whole covered by a high roof. Since with this plan light and
air could only enter through the entrance doorway, the two wi-
ngs and the openings in the gable, there soon resulted in cit-
ies the necessity of directly lighting the atrium and of vent-
ilating it by the arrangement of a rectangular opening (complu-
vium) in the ceiling. (Fig. 115). The surfaces of the roof w
were then sloped inward (Fig. 149), and a collecting basin (im-
pluvium) for the entering rain was arranged in the floor of t
the atrium. But the atrium remained without supports for the
ceiling.(Etruscan atrium). The hearth (focus) was soon trans-
101 ferred to a separate room, the kitchen, and the room behind
the atrium on the axis was arranged as the principal apartment.
(tablinum). This plan was the rule for the ancient Italian
house and was retained until the 2 nd century, in which occur-
red a further transformation through Grecian influence.

We are instructed by Vitruvius in regard to Etruscan temple
architecture, whose statements are supported in general by re-
cent excavations. According to these the Etruscan temple chi-
efly consisted of a high substructure (podium) of approximate-
ly square area with three cells, entirely separated by partit-
ion walls, and a vestibule composed of three rows of columns,
whose outer row was continued to the rear wall extending the
entire width.(Fig. 116). In elevation and in the members app-
ears to us a certain conformity with the older Grecian and the
architecture of Asia Minor (Fig. 117), in a partly weakened a
and also partly strengthened, but chiefly conceived ornamental-
ly, use of the Grecian architectural members, whose treatment
lacks a refined feeling for form. The Doric-Etruscan column
has a plain and low plinth or even a torus-like base, sometim-
es profiled in the form of an inverted ogee, a plain strongly
diminished and frequently swelled shaft, and a capital of the
Grecian-Doric type, but with necking and astragal.(Fig. 118).
The Ionic capitals show the but slightly developed early Grec-
ian treatment, and the Corinthian (Fig. 115) have the bell fo-
rm already developed by the Egyptians with sprouting volutes
(helices), but from the 4 th century also the richer treatment
with busts between the volutes. Piers, pilasters and atlantes
were also employed as supports of the entablature and ceiling,
having bases and capitals shaped like those of the columns. T

The entablature was divided into architrave, frieze and strongly projecting cornice, and it consisted of wood with a covering of terra cotta. The roof was constructed and covered like that of the Grecian temple. The most important monuments are the ancient Etrascan temples recently discovered near Falerii and Marzobotto, as well as the historically notable Capitoline temple of Jupiter, Juno and Minerva at Rome, completed in the year 509 and burned in 83 B. C.

The most interesting portion of the monuments is formed by the tombs, to which was given an extremely careful construction on account of the expressed belief in immortality of the E Etruscans, recalling the religion of the Egyptians. The Etruscan tombs in the earlier time (before the 5 th century) chiefly have the form of the tumulus tomb, previously described among Lydian monuments (page 35), with monumental construction on a circular wall enclosing a mound of earth (tumulus tombs in Caere and Tarquinii, now Cervetri and Corneto), frequently with structures like towers on the base enclosing the sepulchral chamber. (The so-called "Cucumella near Volci and the so-called "tomb of the Horatii and Curiatii" near Albano, indeed already belonging to the later period. Fig. 119). In the mountain regions of the land came into use quite early the subterranean rock-cut tomb with spacious chambers for the dead, whice give us faithful representations of the former dwellings of the living, by their full equipment of house utensils, in the benches against the walls and cut in the rock, seats, doorways and false doors, in the mural paintings, and even in the forms of ceilings.(Fig. 120). The paintings are applied on fresh lime, thus being frescos, treat of funeral feasts, dances and the like, and are strongly influenced by the style of Grecian vase painting. In the Hellenistic period are added to the gloomy ancient Etruscan demons also the lighter forms from Grecian mythology.

Monuments:-- the Etruscan tombs of Tarquinii (Corneto), Caere (Cervetri), Clusium (Chiusi), Veii, Vulci and Orvieto.

The Etruscans were likewise excellent potters and makers of vases, masters in metal working (bronze-casting and refining), and all the minor and ornamental arts. Well known as scattered in nearly all important museums are their terra cotta sarc-

sarcophaguses, on whose covers are represented in relief the dead in a half reclining position. Their ornamentation shows a style of mixed Egyptian, Asian and Grecian-archaic motives, which gradually pass into the Hellenistic-Roman series of forms.

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VIII. Architecture of the Romans.

1. General and historical basis.

In comparison to that of the Greeks, the architecture of the Romans developed under essentially different conditions. While the noble nation of the Greeks, self absorbed and satisfied w with its location after being once occupied, assumed the fostering care of a beautiful and artistic life, until weakened a and disabled in the contests of the races, it submitted to the foreign conquerors, the Romans undertook, alter thay had scarcely firmly founded their state government, also the subjection of the adjacent peoples, following their innate impulse toward conquest, until at last the most extensive and mightiest world empire had been fused together, that can be described by history. Their prominent warlike characteristics and the model internal structure of the state were the weapons, that ensured these magnificent results to the Romans; those also substantially determined their original relations to art. The Greeks saw in this their highest work, a service well pleasing to the gods; for the Romans this was only one of the many means of expression for the might and the splendor of the Roman state and its members. Therefore architecture lay much nearer to its sense, always directed to the useful and the monumental, than the other formative arts. Thus then suitability, size a and showy ornamentation also became the chief characteristics of Roman architecture.

Its development was influenced by the religion in a much higher degree than with the Greeks. This resulted from the opinions of the ancient Italian races, but gradually assumed a tendency allied to one of the Grecian myths. The highest deity is Jupiter, corresponding to the Grecian Zeus; his spouse is Juno. The underworld is ruled by Pluto. Particular veneration was enjoyed by Mars, the god of war, Mercury, the god of commerce, and Vesta (Hestia in Greece) as protectress of the house, the family and the union of the state. In the later p period also certain faiths of the subject nations found admission into Rome and wide extension, particularly the Egyptian worship of Isis and the Persian service of Mithras. -- The belief of the Romans in the gods was cold and scarcely intelligible. The Romans revered only the gods; they lacked the ideal-

idealized concrete presentation peculiar to the Greeks. And thereby the importance of the temple for the development of Roman architecture also diminished. But so much the more definitely did they influence the course of historical events.

So long as the Romans remained within the limits of the Italian mainland, in the period of the republic (510 - 146 B.C.), their art was still simple and plain, earnest and strong, a reflection of the unpretentious and hard warlike people. But after (about the middle of the 2 nd century B. C.) they had extended their world supremacy over Greece and the distant East, the refined civilization and the luxury of the Hellenistic cities also became naturalized among them, and soon led here to a complete change in customs and to an extravagant love of splendor and magnificence, indeed in a marked degree at the beginning of the imperial period.(31 B. C.). Infinite wealth in art treasures and the noble metals were brought home from the conquered lands to the world city on the Tiber, to be declared the property of the state, or as products of foreign countries to be utilized as commercial goods. The almost unlimited flowing stream of wealth then entered the service of the most luxurious enjoyment of life. Special buildings arose for the numberless usue under this and were equipped with the choicest magnificence. An insatiate seeking for show likewise found e entrance into the dwelling of the Roman citizen and even covered the simplest utensils of household life with shining glitter.

Like the foreign art, so the foreign artists entered the Roman service, particularly the Greeks. But the Roman in the e end showed himself as a receptive and teachable pupil. With surprising skill, he made their technical and form acquisitions his own, especially the Grecian world of forms, so apparent to him. And after he had transferred these to his native soil, he completed this fusion and recoining, from which proceeded a new and common law of treatment, that dominated in a similar manner the buildings in the Germanic North, as those under the southern sun of the ancient Orient. Thus the Romans finally became instructors in architecture for the entire later world.

II. The structural system.

Grand were the problems with which the Romans approached their architects in the best period, and so admirable and with such technical certainty and solidity were these solved by them and brought to execution, that even the ruins fill us still with wondering astonishment. Their walls defy the weather and storms of thousands of years, owing to the resistance of the materials employed, particularly to the indestructible adhesion of the mortar and the great care in the technical treatment. To make possible the covering of the vast rooms, they took up the voussoir vaulting already practiced to a limited extent by the Egyptians, Babylonians, Assyrians and the Greeks (See pages 15, 26, 28, 94) and carried it to an unexpected development. Thereby they created that grand science of vaulting, that became a model for all times. With equal certainty they treated the other methods of construction, the combination of the architectural members and the erection of intermediate ceilings and the roofs.

For masonry during the republic and the early imperial period, men took for the public buildings quarried stone and ashlars of the grrnish gray peperine (a basaltic tufa stone) and of the yellow travertine (porous limestone). About the end of the republic bricks came into use, which proved to be an excellent material. They were employed both alone as "opus testaceum" with thin bricks 1.18 to 1.97 ins. thick and 7.87 to 11.81 ins. long, mostly deep red, set on strikingly thick mortar beds averaging 1.58 ins. thick, as well as for leveling and bonding courses in rubble stone walls, and particularly in the concrete work (emplecton), so greatly favorde by the Romans, whose internal construction they strengthened. The external surfaces were faced with carefully cut ashlars, in the later period chiefly with marble and stucco, having an effectiwe use and accenting the alternations of bed and end joints. The ashlar work was animated by drafted margins, bosses and pointing, the plain wall surfaces by "opus incertum", reticulatum and spicatum", i. e., of irregular (uncertain), net-like and herringbone bond. (Fig. 121.

The execution of the vaults followed in a similar manner, ei-

either in cut stone or entirely in brickwork with thick beds of mortar, or also and generally in the mixed construction with concrete and bricks. In this brick arches were set at equal distances and were connected by large flat bricks, so that a strong framework was produced, whose intervals were then filled with concrete composed of mortar and prieces of brick and stone.(Fig. 122). The entire vaulted ceiling thus hardened into a strongly connected mass.(Fig. 164). For the vaulting, t the tunnel vault with the curvature of a half cylinder became the simplest and usual form. From it also the most commonly employed expressions for naming the important parts and dimensions of the vaults were transferred to the other kinds, so that for example, the term "abutment"for the wall supporting the vault and resisting its side thrust, "impost"or "starting point"for the base of the vault, "keystone"for the last stone set in the "crown"of the vault, "span"for the distance between the two "springing lines", i.e., the base lines, "front"or"face-wall", for the walls at right angles to the axis of the vault, and more of the like.

From the intersection of two tunnel vaults open at both ends and having equal impost and crown heights,is derived the cross vault, whose ground area for equal spans forms a square.(Fig. 123). The lower surfaces of the vaults then intersect in sharp
106 edges, the "groin lines", at whose bottom the entire pressure of the vault is concentrated, in a manner. Thereby became possible a large opening in the abutment walls and their complete concentration into separate piers. Long rooms were divided i into such square areas (bays), which were then covered by cross vaults in rows, by which originated the very effective subdivision of continuous arched porticos.

From the covering of a circular area by a vault uniformly rising was derived the domical vault, that in its regular shape forms a hemisphere and rests on a cylindrical substructure, t the drum. (See Pantheon, page 135). Very frequently is this kind of construction found as a niche or apse vault, over semicircular exedras in basilicas, baths etc., and above the great recesses in the walls.

Likewise four, eight, and areas with more sides were covered

by domes, indeed both so that the horizontal section remained polygonal to the vertex (polygonal dome) as well as in the complete round spherical form as a pendentive dome. (As for example in the round vault above the decagon of the so-called temple of Minerva Medica at Rome). Since in the latter case the basal circle of the dome only rests on the middle of the side walls, there must be constructed in the corners for the suspended arched portions a transition to the circular form by corbelled stone courses. This slightly developed construction was replaced in the East Roman art of the late period by vaulted spherical triangles (spandrels, pendentives), a solution that was only to come to complete maturity in Byzantine-Early-Christian art. (Fig. 178).

Vaults chiefly came into use only in public buildings and p palaces as the upper termination of the interior. For simple structures as a rule sufficed the flat wooden ceiling of planks on wooden beams, whose undersides remained visible. In the t temples are found beside the tunnel vaults and domes the horizontal stone beam and stone slab ceilings with very rich coffers. For the external covering both the one-sided shed roof as well as the gable roof known from Grecian temples, as well as the hip and pyramidal roofs, sloping toward all sides, were in use. To ensure the construction and its durability in certain cases (for example over the vestibule of the Pantheon), even the framework of the roof was of bronze. The covering consisted of clay tiles of very diverse forms, as flat, concave, hip and ridge tiles, and exceptionally of marble or metal plates. The individual development and form treatment of the masses of the building were handled by the Romans with the same certainty as the technical construction. Their structural ground element, the round arch, they made a chief ornamental motive by architectural emphasis and by combination with the colonnade. Thereby they enriched the previously known treasure of forms in architecture in the most fruitful manner.

III. The architectural treatment and decoration.

For the mastery of the great architectural problems of the architectural subdivision of the masses of the buildings proved that the principles of form developed in Hellenistic art no

longer sufficed. The columns could only be employed further on the temples in accordance with their original purpose. On buildings of greater dimensions in several stories they could no longer receive the heavy loads. Therefore they were half or even wholly inserted in the wall in order to transfer to t the wall the motive expressed by them. Thus the columns lost their original function and importance. They were treated as structural members for the vertical subdivision of the walls, and so received a predominating ornamental character, that was even strengthened in the later period, when they were set on pedestals (postament) to equalize their heights.(Fig. 126). The horizontal subdivision of the walls resulted by cornices in the form of the Grecian entablature. Over the columns was then required a corresponding projection, an entablature block, around which the section was then returned at right angles. On buildings in several stories were employed (first on the theatre of Marcellus in Rome) all three orders above each other, and indeed corresponding to their historical development and their character, the Doric on the lower story, the Ionic on the second, and the Corinthian on the third. If a fourth story existed, as for example on the Colosseum in Rome, this then received an order of Corinthian pilasters.(Fig. 124).This arrangement later became a permanent rule. The buildings usually received an attic, i.e., an extension above the crowning cornice peculiar to the Roman style, and having the height of about one-third that of the columns below it.(Fig. 146). It equalized the disproportion between the entablature and the h height of the building. Likewise in this also appears the assured feeling of the Romans for a good proportion of the members of a building to the whole.

As having very important consequences appeared the combination of the colonnade with the round arch, when the walls were entirely resolved into piers, or partly with engaged columns, and the openings thus produced were spanned by round arches. (Fig. 125). The earliest dateable example of this is presented in Rome by the remains of the Tabularium built in 78 B. C. Yet this new element is already found on steles of Belos and Syros of about 100 B. C. To the round arch was soon given an

enclosure with section moulded like the members of the architrave, the archivolt (face arch), a continuous impost moulding as a springing band.(Fig. 126). Thereby was imparted to the facades the very animated, rich and picturesque effect of the series of arches, the arcade on piers with engaged columns or pilasters. This novel treatment soon became the predominating architectural motive of Roman architecture and in combination with the division into stories and the vaulted construction, the basis of the Roman facade and architectural system. Besides the structural works, it appears to us as the most important acquisition of the Roman architects. But in the architectural and ornamental treatment the details and the decorative equipment with sculptured reliefs and pictured representations, it continues in stronger dependence upon Grecian art. It learned to know this in the Hellenic presentation, already freed from the original severity, and now passed to a wider free use and transformation of the late Grecian series of forms.

The development of the columnar orders leaves to be regretted a penetration into the deeper nature of the columns and into the mystery of their architectural beauty in the Grecian sense. The Doric style, so highly developed by the Greeks, t that by its severe restraint would most strongly correspond to the character of the Roman people, found acceptance in but moderate measure. It mostly experienced substantial alterations, until in the new form of the "Tuscan order"it came into the g general arrangement.(Fig. 127). This nearly always has a base, even if merely consisting of a plinth with a cove as apophyge, or frequently is also in the form of the Attic base, or as a plinth with torus and fillet. The shaft is never fluted but is usually smooth for its entire height or for the lower third. a neck moulding (astragal) forms the transition to the capital, that consists of necking, echinus and abacus. The echinus as a rule is profiled as a greater round (in a quadrant), but also frequently as a cyma. The abacus bears a crowning member. The entablature has a low architrave, at first plain, later in two or three facias, and a high frieze (see lower cornice of Fig. 126 in Fig. 127), on which the angle triglyph is set back over the axis of the outer column, so that a half metope resu-

results outside. The triglyphs are frequently omitted. In t the main cornices of certain earlier buildings (for example, on the theatre of Marcellus), a dentil band is inserted over the triglyphs. (Fig. 125).

The Roman-Ionic order adheres to the Grecian model in general, even if its classical purity in treatment be not attempted. The volute bolster on the capital was formed by a horizontal band without the depression at the middle. (Fig. 128). The v volute lines no longer remain in the plane but turn outward. For a peripteral positions the diagonal capital (Fig. 79) was preferred. The entablature has a comparatively low architrave and frieze, but corresponds in details to that of the Grecian=Ionic with somewhat heavier sections.

The Corinthian order occupies the preferred position among the splendor lowing Romans. The proportions of its column are the same as in the Grecian order. The shaft generally remains smooth for the nobler materials, and especially for those of dark color; for light stone it receives 24 flutes, ending in semicircles above and below, or evvn horizontally (in Pompeii and Tivoli), in their lower third flat cables (rounds) being frequently inserted. The shafts not seldom have spiral flutes, decorated by scales, foliage,or even mosaics. The capital is somewhat higher than the Grecian. It exhibits a delicately d designed treatment; from two rows with eight acanthus leaves in each spring eight flowers with two scrolls each, that unite in pairs beneath the angles and at the middle, support the abacus and thus express the static function in a very animated way. (Fig. 129 a). Corresponding to the treatment of the capital, the architrave is also more richly decorated by ornamental members, the facias not seldom having continoous fret or scroll bands and with sunken panels on the underside. The frieze receives sculptured figures in relief or festoons of fruits. (Fig. 130). The Romans treated the cornice in a manner unsurpassed in richness and beauty of effect. The widely projecting geison rests on a continued series of elegant modillions, recurved in the forms of doubled volutes and luxuriously decorated. Since then the visible intervals between the modillions receive recessed coffers, such a main cornice therefore

appears as a crowning of exquisite beauty, when seen from bel-
ow. (Fig. 131).

In the imperial period originated a variety of the Corinthi-
an capital by its combination with the Ionic diagonal capital,
so that an Ionic capital was placed on the Corinthian bell, w
when the volutes either grow out of the interior (ardh of Tit-
us) or are joined by a narrow horizontal band (arch of Septim-
us Severus in Rome). This Composite capital (Fig. 132) is fi-
rst found on the arch of Titus in Rome, built 81 - 96 A. D. It
appears as a scarcely happy creation, that has sacrificed just
the most effective part of the Corinthian capital, the flower
stalks with the elastically springing scrolls, in favor of an
inorganic innovation. But the Roman art of the later period
also matured other forms of the capitals of mocumns, the so-c=
alled fanciful capitals with very free added plant motives, a
animal and human figures and the like. (Fig. 129 b). Men chi-
efly preferred to furnish the pier and the pilaster with such
unrestricted ornamental forms. Otherwise to them and to the
antes in all Roman orders were given the same proportions in
height and the same bases, sections and forms of capitals as
to the corresponding columns. In the treatment of the details
of the Corinthian order Roman art rises to a splendid, luxuri-
ant and frequently showy magnificence. All members of the ba-
se, of the capital and the cornice were finally adorned in the
richest manner with architectural decorative forms (pearl, le-
af and egg beads etc.) and with ornamental work.

Concerning the polychromy of the architecture, so far as th-
112 is was not produced by the use of stone of many colors, we on-
ly have direct information in regard to the structural parts
covered with stucco, which were always painted in animated co-
lors. Of the facades constructed of marble, so far as this
may be determined from existing remains, only the sculptured
architectural members and ornaments received a decorative com-
pletion by colored treatment.

The external columnar architecture likewise forms the basis
for the decoration of the interiors. In the greater monument-
al buildings the wall surfaces were subdivided by columns and
pilasters.(Fig. 133), and were animated by niches, which like

the windows and doorways, when spanned by a round arch receiv-ed an archivolt with imposts and keystone, or when of rectang-ular form, a moulded architrave, pilasters or columns with a horizontal, arched or angular pediment. (Figs. 134 and see 120).
113 The intermediate mural surfaces were divided into spaces by h horizontal and vertical bands, with again recessed panels in darker colors. By a corresponding contrasting treatment of t the series of columns and pilasters and of the cornices in wh-ite or light colors (the bases, capitals, architraves and cor-nices in white or light colors, the shafts of the columns and pilasters in deeper and stronger tones, the friezes in very d dark colors) was attained a great clarity and united effect. For the most prominent buildings the material consisted of a genuine marble facing, where the walls were cowered with marb-le slabs fixed with cramps, set with mortar at the back and t then polished, a procedure that had already reached high perf-ection in the Alexandrine period. The pavements were laid wi-th marble slabs or mosaic, that in the earlier time consisted of small cubes of stone of many colors (opus tesselatum), but in the imperial period also frequently were inlays of thin sl-abs, cut into the forms of a drawing (opus sectile). By the decoration of the vaults we see how accurately the Romans und-erstood the develepment of their bold construction into an ar-tistic form and to enhance the effect of vast space. They di-vided the surfaces into square, rectangular, lozenge and poly-gonal coffers, diminished correspondingly upward in the dome, which were deeply sunk, richly enclosed by pearl, egg and leaf mouldings and with grounds ornamented by a suspended rosette in relief. (Fig. 135). Thereby theynot only actually reduced the weight of the vault, but also gave it the appearance of a light and elegant ceiling, which spanned the great hall like a network (Figs. 133, 14?, 160). For less richly treated arch-itectural works and in smaller rooms, there occurred instead of the marble facing an imitation in stucco and painting, from
114 which proceeded the charming (Pompeian) style of decoration to be described later.

Decorative sculpture acquires on Roman buildings a richer f field of application in the crowning statues, friezes, atlantes,

caryatids and the like, but does not advance beyond a direct imitation of Grecian art works and conventionalization in the Hellenistic sense. Very beautiful are certain historical reliefs (for example, on the arbh of Titus the bearing of the booty from the sanctuaries of Palestine, Fig. 136), and the mythological figures, geniuses, nymphs, soldiers and the like, modeled freehand in stucco, such as have still remained in the Stabian Baths of Pompeii and in antique tombs on Via Latina n near Rome.

Decorative painting likewise remains dependent in style upon Grecian art. In the so-called scenography (perspective), the painting of plane walls with architectural and figure representations, it attains to excellent works, that we can best follow in Pompeii.(Fig. 150).

In Roman ornament the acanthus forms the basis, yet conventionalized diferently from Grecian foliage. On the Corinthian capitals of the best period (vestibule of the Pantheon), it exhibits a palm leaf arrangement with a spoon-shaped rounding of the leaves. (Fig. 137). Otherwise the connection with projecting scrolls in order to arrange the acanthus leaves in overlapping form with luxuriant and soft modeling is characteristic of Roman ornament. (Fig. 138). To this are added conventionalized animal and human forms, fruit and lower festoons with bands, skulls of sacrificed animals, tools and weapons, and finally quite naturally treated plant motives, branches of the plane and cherry trees, vine leaves and branches, etc. From the overlaying or repetition of these elements originated grotesques,* the distinctive mixed ornaments of the Roman antique
115 composed of wonderful ("grotesque") human and animal forms with scrolls and foliage, that finally (as the so-called "infinite repetition") overran entire surfaces in symmetrical arrangement, and became the direct prototype for the periods of Saracenic art, so fruitful in the domain of ornamentation, the h high and late Renaissance and the Barocco period. The employment and detailed development of Roman ornament misses the refined feeling for form in accordance with the functions of the architectural members found in the carefully judging Grecian art spirit. In the entire treatment is manifested a free conception, regarding the ornament chiefly in itself as a decora-

decorative accessory, wherefore also many architectural works, especially in the later time, even if calculated for a rich e effect, produce a massive, heavy and overloaded impression by the often actually inorganic decoration of nearly all structural members. The importance of Roman architecture is indeed but slightly influenced thereby. For not in details lies its strength, but in the mighty technical works in regard to their creation of colossal interiors, in the great monumental tendency, with which in the treatment of facades and internal decoration it masters the masses, and particularly in the model p plans of the types of buildings created by it. *

** The name of "grotesque" appeared at the end of the 15 th century for the antique wall and ceiling paintings then discovered in subterranean chambers (grottos). The Renaissance masters (particularly Raphael Santi among them) were so enraptured by their freshness and charm, that this mode of ornamentation led to a new conception in the art of the Renaissance.(See volume 2).*

IV. The monuments.

For several centuries the temple stood among the Romans in the foreground of architectural activity. But in general it formed but a small part of the problems, that were proposed to architecture by the powerful Roman citizens, soon acquiring independence and wealth. By the prominent participation of t the entire people in the politics of the world empire, public life was spent to a greater extent than in the Hellenistic cities,in the market place and the forum, which consequently was transformed into a magnificent design in the grandest style. For the developed commerce and the courts the erection of the basilica became necessary, and in order to satisfy the strong claims of the people to public enjoyment, those of the theatre, amphitheatre and circus. For recreation and the care of the body served particularly the public baths or thermes, in which the Romans beheld such indispensable designs, that also every-
116 where that they settled, care was first taken for their establishment. Then in the best period arose the triumfhal arches as magnificent gateways in honor of the entering victorious generals and the memorial columns. Secular architecture shone

in the stately imperial palaces and villas, and the Roman dwelling received its artistic development. But even the tombs a afford interest to the history of architecture, as well as the utilitarian structures, in which the Romans completed astonishing undertakings. The entire plans and treatment of the architectural works shows in the tendency toward the grand and monumental, in the free conception and the rich and varied forms, the basal character of the people, that conquered and ruled t the world.

The Roman temple is derived in general from a combination of the Etruscan ground plan with Grecian architectural forms. But its entire development is treated somewhat more freely than t that of the Grecian temple. The ancient Italian form determines the earlier monuments, and which is similar to the Grecian prostyle temple, consisting of a deep vestibule with a single cell on a high podium, which is also retained for the later buildings in order to enhance the effect.(Figs. 139, 140). To the podium leads on the facade a wide flight of steps flanked by side walls. The peristyle is generally only indicated by half columns on the external walls of the cell.(Fig. 166). In the interior in case of richer treatment, the walls are animated by alternately rectangular and semicircular niches accompanied by columns or pilasters and crowned by caps, so that an extremely showy internal architecture is produced. A particularly large recess (exedra) is intended for the statue of the deity. The covering of the cell substantially differs from that of the Grecian temple, in that instead of the horizontal ceiling occurs a coffered tunnel vault (double temple of Venus and Roma in Rome), but the Grecian pediment was still retained on the exterior. In the later time are found nearly all kinds of temples, even peripteral. Especially characteristic is the preference expressed for the circular temple, both that with horizontal ceiling as well as with domical vault. The Pantheon at Rome is the most famous example.

Public secular architecture obtained its opportunity by the ground planning and architectural development of the cities. For this, among the rich Hellenistic cities the magnificent plan of Alexandria chiefly appears to have served the Romans

as a model. Not only were the commercial and sanitary conditions cared for in the best manner, but likewise a vern wide scope was allowed to purely artistic considerations. These originated entire magnificent streets with porticos extending along both sides, but which were again effectively interrupted by certain projecting buildings and picturesquely animated by arched gateways and memorial columns. But the chief attention was always devoted to the furum, the market place corresponding to the Grecian agora, as the centre of the commerce of the city and the public life, the scene of political transactions a and of the sittings of the consultations of the great assemblies of the people. Each city had at least one forum. There were placed the most important buildings. The Forum Romanum was the oldest and most noteworthy in Rome; from its rostrum (rostra, the public platform of orators) the Roman people was formerly inspired to great deeds; Caesar and Augustus beautified it by splendid buildings.(Figs. 141, 142). But also the other forums were richly and in part showily treated. The forum of Trajan was esteemed a wonder of the world. -- A clear r representation of such a design in a smaller city is still giver by the ruins of the princepal forum of Pompeii.

Among the secular buildings erected on the forum, the basilicas occupy the most important place. They were already known in the Grecian period as places for courts and officials (stoa basileos = royal portico), had in Rome no strictly limited purpose, but chiefly served for the proper market traffic and the administration of justice. Its ground plan (Figs. 141, 16-) has the form of an elongated rectangle, which contains a middle room of similar form, the middle aisle; this is surrounded by single or double porticos, the side aisles. At one end is found the entrance treated as a portico, opposite it at the other end being usually a semicircular addition, termed apse, as a raised platform for the court of justice and enclosed by marble railings. The side aisles were frequently two story, the middle aisle being made high. If the rafters were not left visible, the ceiling was composed of a coffered wooden ceiling, more rarely vaulted. The forensic (judicial) basilicas of the later period frequently differ from the normal design,

but always exhibit the ground scheme of the three aisled principal room with one or more tribunes. The oldest and a well preserved example of this very important form of building is the basilica on the chief forum of Pompeii, dating from the second century with a three aisled main apartment and a rectangular tribune. In the imperial period even the larger palaces had their own basilicas. (Fig. 152).

118 The Roman theatre was imitated from the Grecian (see page 93),
119 but is not sunk into the ground, since it is treated as a detached structure, so that a tall architecture in several stories was required for the exterior. Instead of being in the orchestra, the drama was performed on an elevated stage (pulpit-
120 um). For this the Grecian proscenion received a corresponding extension toward the orchestra. The parascenions could be removed. The side entrances (paradoi) were built over, above t them being arranged the preferred boxes (corresponding to the proscenium boxes of the modern theatre), and which were then placed against the stage building. Thereby originated an enclosed plan, that has been retained until the present day as the ground form of theatre buildings. The first stone theatre at Rome was that of Pompeius of the year 55 B. C., the best k known being that of Marcellus of the year 11 B. C.

For producing hunts of animals and combats of gladiators, t stage could be removed. By the great crowding of the people to such shows, there soon resulted the need for utilizing for the spectators the side previously occupied by the stage. Thus originated the generally complete elliptical enclosure of the amphitheatre, in which the orchestra became the arena or place for combats, surrounded by the rows of spectators rising around it. A well preserved amphitheatre, at the same time p proved to be the earliest, is that at Pompeii,(Fig. 143), built about 70 B. C., but the grandest designis that of the Flavian "Colosseum" in Rome, completed in the year 80 A. D., (Fig. 144), whose external dimensions amount to 616.8 and 511.8 ft., in t the arena being 252.6 and 152.6 ft., so that over 50,000 spectators could find places. The height of the external wall measured 168.8 ft. Even today in its ruins, this grand structure makes a truly overpowering impression.

The Roman circus corresponded to the Grecian hippodrome. It was a structural design for races in chariots and on horseback, consisting of a very long and narrow race course, the arena ((that of the Circus maximus must have been 1952.2 ft. long and 360.9 ft. wide) and the space for the spectators rising like an amphitheatre and frequently enclosed by a portico (at the Circus maximus were apparently 260,000 seats). In the middle of the arena extended lengthwise a raised parapet (spina), crowned by statues and obelisks; at each end stood a conical stone goal (meta). The portal for the entrance of those taking part in the contests was found at one of the two ends; the opposite one ended in a semicircle. Here was the porta triumphalis leading through the space for spectators and intended for the festal exit of the **victor.** -- At the end of the republic the Grecian stadeion and odeion found entrance into Rome.

The Baths (thermae) were developed gradually from the bathing arrangements connected with the gymnasiums after the Grecian model into magnificent and luxurious buildings in the grandest style, which were both intended for the care of the body and for instruction, and also for the intellectual and artistic enjoyments of the most select kind. As essential parts they contained (Fig. 145):-- the vestibule (lobby V), a room for removing the clothing (apodyterium), the cold bath (frigidarium) with swimming basin (natatio), the lukeward bath or warm air room(tepidarium), the hot or ward bath (caldarium) with the cold water basin (labrum), the sweat bath (laconicum, 7) as a small and generally circular room filled with hot and dry air, the anointing room (unctorium) and the palaestra, the court surrounded by porticos and for gymnastic exercises, especially for the ball games before the bath, so dear to the Romans. The plan regularly exhibits an arrangement of the principal rooms successively on the shorter axis of the bath building, first the cold bath, then the ward bath in the middle of the structure,and behind this the hot bath. The heating was done by the hypocaust, a heating chamber under the floor, from which hot air flues led to the hollow walls of the hot and warm baths. -- These bath structuees lay in a spacious court with areas for exercise and games, adorned by plants and waterworks, surrounded by porticos with promenades, lecture halls, exedras

and galleries for paintings and sculptures in part of the highest value. The clearest representation of the baths, usually existing in very great numbers, is given in Pompeii by the baths erected in about the 2 nd century B. C. on Stabian and Abundance streets, in Rome by those of Caracalla on Voa Appia, completed in the year 216 A. D. (Fig. 145).

The triumphal arches come from the primitive tendency of the Roman people to create for its great deeds and those of its g generals prominent monumental memorials. They belong to the most important and artistically perfect works of the Romans. Their form is determined by the purpose of treating state gateways as artistic enclosures of a high and wide gate, spanned by a richly coffered tunnel vault and usually with two smaller side passages. The facades receive a single or doubled colonnade on a continuous plinth or pedestals, a splendidly treated cornice and a high attic with the dedicatory inscription. Projecting columns are crowned by capitals, the frieze, arch spandrels and panels are adorned by rich sculptures, whose meaning relates to the deeds of the victor. There also exist numerous similar triumphal arches in the other provinces of the world empire, but those best known in Rome are those of Titus (Fig. 146), of Septimus Sewerus (Fig. 163) and of Constantine the Great.

The honorary (memorial) columns likewise have the problem of supporting honorary statues, particularly those of the emperor, as well as by cowering the shaft with a slowly rising and continuous band of reliefs, to present the largest possible surface for connected historical representations. (The relief band, 3.28 ft. wide, 656.2 ft. long and developed in 22 turns, of t the column of Trajan in Rome, Fig. 147, treats of the two campaigns of the emperor against the Dacians, and it has 2500 figures from 1.97 to 2.30 ft. high, with a careful rendering of racial characteristics, costumes and weapons of the different peoples, thereby being a document of high value.).

The excavations in Pompeii afford to us most important conclusions regarding private architecture. The Roman dwelling very substantially differs from our modern houses, because as in Greece, its entire beauty is internal, while the exterior

entirely lacks the development of the facade. Only in streets
for traffic do shops and workshops open externally. All the
principal rooms lie on the ground level, whereby a great exte-
nt of area is required, especially in depth. Where an upper
story existed, only subordinate rooms were placed in it, at
most but a dining room (cenaculum). We find the ground plan
in the Etruscan dwelling (see page 100). From the 2 nd centu-
ry onward, there occurred an extension and enrichment under
the influence of Hellenistic art and mode of life. The repre-
sentation of the men's and women's dwelling found no admission
among the Romans. The atrium and the tablinum remained as be-
fore the chief portions of the house. Likewise the other roo-
ms grouped around the atrium were retained. But behind the t
tablinum was placed a court with porticos, the peristyle.after
the Grecian model (see page 96), treated in its inner open sp-
ace as an ornamental garden (hortus) (Fig. 148) and surrounded
by rooms, that received the Grecian names of Oecus (festal ha-
ll, exedra (conversation hall) and triclinium (dining hall).
A narrow passage beside the tablinum, which the Romans termed
"andron", connected the peristyle and the atrium. The tablin-
um also opened toward the peristyle in its entire width or by
a wide doorway: The atrium itself was generally enlarged. In
its original and simplest construction, the Tuscan atrium, the
ceiling was supported by four intersecting beams, that left t
124 the compluvium free between them. But with the ever increasi-
ng dimensions, support soon became necessary, at first by four
columns and later by a greater number, so that also the atrium
was surrounded by porticos. Thus originated the tetrastyle a
and the Corinthian atrium. The surfaces of the roof were inc-
lined inward to the compluvium; the falling rain water was col-
lected in the impluvium, that in the better houses was enclos-
ed and bordered with marble. For the displuviatile atrium the
roof surfaces did not slope inward, but outward and toward the
enclosing walls; the light opening then occurred on high at
the ridge of the roof. Smaller atriums were sometimes entire-
ly covered by a hip roof without the compluvium (atrium testu-
dinatum). The entire plan of the dwelling permits the recogn-
ition of a **division** into two main portions, a front house (an-

(antica) with the plan of the Italian atrium house, and a rear house (postica) after the model of the Grecian peristyle house (Fig. 149). The atrium and the front rooms in the later period chiefly served the master for his business purposes, while the peristyle building remained ever more reserved for the proper family life. The connection of the two divisions was moreover chiefly effected by the andron and also through the tablinum, which received particular treatment as the reception room of the master.

The construction of the Pompeian dwellings entirely occurred in rubble masonry, both as opus incertum and as opus reticulatum with the use of lava, tufa and limestone (travertine). B Bricks were only found at the angles, door jambs and columns, when these were not composed of the stone mentioned. In the imperial period also the white Carrara marble found employment for columns, pilasters and cornices, and the variegated in slabs for floors and facing walls. Otherwise the internal walls were covered by a coating of stucco 1.97 - 3.15 inches thick and then furnished with animated painted decorations. Those in great part well preserved Pompeian decorations are most interesting to us for the history of art. But they also have s such an individual and intimate charm, that we now still pay to them our entire admiration. The procedure throughout appears, as fresco; the bits of marble were prepared as mortar, applied in three coats, and the last layer was made as fine as possible and already mixed with the ground tint. Hence occurred, so long as the plaster remained damp (al fresco), the paing on it with colors intimately mixed with Punic wax. This appropriate technical procedure explains the great durability of Pompeian mural paintings; on it is also based the predominance of distinct colors on large panels, and the basal harmony thereby required. The evolution of the ornamentation permits the recognition of four distinguishable styles, that not only prevailed in Pompeii, but also in Rome at about the same time. The first so-called "incrustation style" (3 rd and 2 nd centuries B. C.) is characterized as a direct imitation of marble facing by a covering of stucco in relief. In the second style, the so-called "architectural style" (in Rome from 100 B. C.,

in Pompeii from about 90 B. C.) the marble facing was likewise 120 imitated, not in stucco, but by painted representations of architectural forms, as those might be in reality. In the panels are inserted paintings of figures and landscapes. About t the Christian era began the "third ornamental or Egyptian style", in which the wall was regarded as an unbroken surface and decorated by ornamental paintings, in which were employed numerous elements derived from Egypt, indeed in beautiful, noble forms and delicate and finely graduated colors. If architectural motives occur in this style, they are purely ornamental and are treated so gracefully and flatly, that they could not be taken for the reality. The fourth and properly "Pompeian style" from the late times of Pompeii (about from 50 to 79 A. D.) resolves the walls into a sportively slight, perspective, but always conceived as decorative, sham architecture (Fig. 150), with views of fanciful porticos animated by figures and soaring geniuses or idyllic landscapes, all in deep and brilliant colors of great richness. By these paintings, which we must count among the most magnificent creations of antique a art, the Pompeian house, so tasteless and plain externally, received an extremely attractive and harmonious interior; the already effective architectural as well as tasteful effect of the perspectives, especially from the atrium to the peristyle (Fig. 151), thereby experience still a considerable enhancement.

More simply that the house of the well to do Roman citizen was treated that of the less wealthy man, even if on the same ground lines (in Rome were even barracks for rental, which piled up so many stories, that finally a legal limit was fixed for their extreme height). But on the other hand, also the houses of the rich and the great were the more extended in plan and luxuriousness in the equipment. The imperial villas of the first period in general borrowed their ground plans from that of the citizen's dwelling with a mode of execution corresponding to the dignity of the occupant. The vestibules became princely anterooms, the atriums were high and spacious columnar courts, the peristyles great garden designs with walks, adjacent collections of books and paintings, and even with basilicas for the official business of the emperor. With the inc-

increasing pretensions to holding a court must the enclosing of the plan ever yield to a more open structure on the site a and a thorough regard to surrounding nature. The porticos and windows opened sometimes into the open air or on well kept gardens. The natural elevations of the ground were utilized as effectively graded terraces. Baths were found in nearly all villas, but in the largest were also theatres and stadiums. -- Of the numerous structures of the kind but few ruins now remain, the best preserved being at Albano and Tivoli, the latter being especially interesting, since there the art-loving and widely traveled emperor Hadrian had the most famous architectural buildings of the ancient world reproduced at a smaller scale for his summer residence.

Among the imperial palaces, that commenced by Augustus in the midst of the Palatine at Rome and extended in plan by the Flavians, formed a palace or proper residence of the emperor. The ground plan (Fig. 152) permits the recognition of the sequence usual in the Pompeian house of enclosed rooms and open courts in a symmetrical arrangement, indeed at a disproportionately great scale. The narrow main facade at the north is preceded by an open portico with piers, from which three doorways open into the palace, the right one into a basilica, the left into the lararium (palace chapel), and the middle one into a reception hall very effectively treated architecturally by niches and colonnades, 98.4 × 128.0 ft. Behind this lies a colossal columnar court 190.3 × 173.9 ft., adjoining which on the right (northwest), and probably on the not yet excavated left side, is a series of rectangular and octagonal rooms with semicircular exedras. The termination at the southwest end is formed by a great hall, generally designated a triclinium,100.1 × 111.6 ft, with a segmental niche on the main axis. Through the doorways and windows in the northwest wall the view opens into a nympheum constructed in an adjoining room at the side, a grotto structure with fountains etc. In the subdivision of the interior appears the endeavor to animate and extend the rectangular plan by the arrangement of niches and circular rooms. With the corresponding vaulting then originated those relations between the ground form and the shape of the ceiling,

on which is based the unified and decided effect internally of
Roman architectural structures.

The remaining imperial palaces are freer in plan, in part en-
tirely developed independent of the sequence of rooms in the
Roman dwelling. The palace of Diocletian at Spalato has the
unusual form of a fortified structure arranged on a colossal
128 area 649.6 × 518.3 ft., that is defended by 16 towers, and li-
ke a Roman camp, is divided into four quarters by two intersec-
ting streets, and in which the separate apartments are grouped
around a peristyle.

The internal ornamentation developed in these imperial pala-
ces is an ostentation previously unknown, that in certain cas-
es, as for example in the golden house of Nero (domus aurea)
was carried to the extreme limit then possible.

As among the dwellings of the living, so likewise in the to-
mbs was the place of repose of the emperor distinguished above
the rest by its magnitude and rich architectural treatment.
The mausoleum of Augustus was planned in the year 28 B. C., in
which the members of his family and an entire series of later
emperors were buried, had the Etruscan form of a tumulus tomb,
consisting of a high circular substructure 311.7 ft. in diame-
ter, on which was raised the mighty earthen mound planted with
cypresses, at the apex of which stood the colossal statue of
the emperor. The external wall was subdivided by deep niches
with half domes, a columnar portico being placed before the e
entrance. Even more imposing was the mausoleum of Hadrian (bu-
ilt 136 - 139 A. D.), preserved in the castel of S. Angelo.It
had a similar ground form. But the drum enclosing the sepulch-
ral chamber rose above a substructure 341.2 ft. square, was
239.5 ft. in diameter, and was faced with marble and crowned
by a rich entablature with a series of statues, behind which
then rose the cone, whose apex was occupied by a statue of the
emperor. In the other tombs are found nearly all modes of bu-
rial, that the Romans had learned from the peoples conquered
129 by them:- rock-cut tombs after Etruscan traditions (tombs of
Scipio and of Naso near Rome), rows of tombs in walled burial
places with locations for cremation (ustrina) tombs, fountains,
and simple marble memorial columns, the stones similar to the

.recian steles; columbariums as subterranean vaulted tombs wi-
th niches arranged above each other in the walls for preservi-
ng the urns of ashes; later when the cremation of corpses was
abandoned (from the 2 nd century A. D. onward), sarcophaguses,
that were partly placed in pits and partly in the open air; al-
tars on terraced substructures, in which were placed the sepul-
chral chambers (particularly common in Pompeii); small struct-
ures like temples of varied forms; tumulus tombs with a high
cylindrical substructure (tomb of Cecilia Metella on Via Appia),
in some cases even pyramids as imitations of Egyptian royal t
tombs (pyramid of Cestius in Rome). These tombs found places
outside the city gates and along both sides of the country ro-
ads. In Rome the Via Appia and Via Latina are the more promi-
nent necropolises. A well preserved and harmonious view of s
such is still presented by the street of tombs before the gate
of Hercules at Pompeii. (Fig. 153).

Just as in the already mentioned structures and monuments,
the Romans also showed themselves in purely utilitarian build-
ings as masters with the spirit for great undertakings and wi-
th the highest technical abilities. They not only executed t
them from the first as solid as if they were possibly intended
for eternal duration, but they generally gave to them a monum-
ental and frequently artistic character. To provide a good wa-
ter supply for the baths and innumerable fountains were const-
ructed aqueducts of extent previously unknown. At the beginn-
ing of the imperial period the city of Rome already had nine
supply channels with the immense length of 270.9 miles, with
14.9 miles of tunnels and 39.8 miles of aqueducts. Later were
added five others. Most are now merely ruins, which for miles
in length intersect the quiet campagna by unusually picturesq-
ue arcades. (Fig. 154). But four of them still as formerly b
bring fresh spring water into the eternal city, and they alone
make Rome the richest city in water in the world. At the int-
130 ersections with the streets the aqueducts were carried across
by architecturally treated gateways (Porta Maggiore on the Aq-
ua Claudia). The distribution occurred by means of wisely ar-
ranged water houses. The ends of the aqueducts were treated
as monumental spring and fountain houses, and as show fountai-
ns, the so-called nympheums.

Likewise the best care was taken for the drainage of the city by numerous subterranean sewers, of which the mighty and b beautifully vaulted Cloaca maxima presents the most famous example. It was formerly ascribed to the Etruscans but according to recent investigations, it dates from the early imperial period, at least in its present condition.

Of the former city walls, there still remain those of Aurelian (built 270 - 276 A. D.), although their construction no l longer attains to the solidity of the earlier buildings.

Likewise outside in the distant provinces of the colossal e empire have remained numerous Roman buildings as gates (Porta Nigra in Treves), Bridges (Fig. 155), aqueducts (Pont du Gard near Nimes) and paved roads. Along the northeast frontier extended the Wall, that Roman frontier wall, composed of an earthen embankment, ditch, and partly also of palisades, defended by castles, which was built under Domitian and the later emperors.

V. Historical evolution and Monuments.

If one surveys the course of evolution in construction and form of Roman architecture, then are four periods clearly recognizable.

1. From 510 to 146 B. C. the early republican period, the epoch of ancient Italian, Etruscan and early Grecian art, chiefly practiced by Etruscan masters in simple and plain forms.

2. From 146 to 31 B. C. the period of Roman conquests in southern Italy, Greece, Egypt and Asia Minor, characterized by the penetration and advance of foreign elements, particularly of the Hellenistic series of forms and the transition to the Roman architecture. In both periods the materials consist of peperino, travertine and airdried bricks with a covering of stucco and terra cotta.

3. From 31 B. C. to 138 A. D. the best period of the Roman world supremacy of Augustus and his successors until the death of Hadrian, i.e., the period of perfected Greco-Roman style w with the use of marble and stone of many colors in the most c careful construction and with the noblest treatment of forms.

4. From 138 to 337 A. D. the period of the decadent empire and of decay, characterized by the use of the most costly mat-

materials, the increased ornamentation, excessive use of mouldings, overloading with ornamental work, neglect of care in c construction and the treatment of details, and finally complete degeneration and decay.

/31, In the first period is Roman architecture chiefly dependent upon Etruscan until late in the third century. The temples in great part had the "Tuscan plan", for example that of the Capitoline Jupiter at Rome (see page 101), and even then the masonry construction was adopted from the Etruscan. Yet there also appeared in certain cases the influence of the art of the southern Grecian provinces in Italy. A temple recently discovered in Conca near Rome, whose erection must fall in the 5 th century B. C. has in plan and in the stepped substructure entirely the Etruscan characteristics. (Elongated cell, pronaos, opisthodome, and portico on the front and sides with 4 × 9 columns). About the end of the 1 th century in an independent w way the Roman spirit, always directed toward the practical and useful, expressed itself in numerous utilitarian structures, bridges, roads and aqueducts. The temple always received a G Grecian cell, a high podium, spacious front portico with closely set columns after the Grecian pattern, side porticos and E Etruscan rear wall.

In the 3 rd and 2 nd centuries became apparent a stronger i influence of the Etruscan-Greek influence, especially from Asia Minor. Rome engaged in animated commerce with the kingdom of Pergamon. The Hellenistic architecture represented there by Hermogenes (see page 91) was transferred to some Ionic temples in Rome, to the Mater Matuta, called Fortuna Virilis on the forum Boarium in Rome (Fig. 139, 140) of the year 212 and that of Juno Sospita of the year 197 B. C. But at the same t time the Corinthian style found acceptance on the Temple of M Magna Mater on the Palatine from the year 191 B. C., and the charming round temple in Tivoli from the middle of the 2 nd century (Fig. 156), where the slight diminution in the lower third of the shafts of its columns is striking. From the beginning of the 2 nd century likewise date the first market halls, the basilicas, as the earliest basilica Porcia, erected in the year 184 by M. Porcius Cato after his return from Greece,

and the basilica Fulvia of the year 179 B. C.

In the second period Grecian influences obtained supremacy. The courts were enclosed by porticos and animated by statues, the temple itself being adorned by mosaic floors after Grecian models and with gilded ceilings. For the building of the two
132 temples of Jupiter and of Juno on the Field of Mars, Hermodoros was called from Cypros (after 146 B. C.). He erected in t them the first great marble buildings of Rome, whose prominent magnificence contributed so much to the Hellenizing of Roman architecture. About the end of the century was built the beautiful round temple, the so-called temple of Vesta near the Tiber, a nobly treated peripteral temple of 20 marble columns w with a small round cell.

About in the year 80 B. C. set in a strong impulse in the a architectural activity of Rome, and thenceforth Roman architecture bears its individual characteristics. By the addition of the system of columns in the form of half columns with the corresponding entablature, the walls received an architectural s subdivision with a definite sequence of the three columnar orders in buildings of several stories. The arch entered into close connection with columnar architecture. There originated the Tabularium as the archives of the state, a monumental structure of high importance to the history of art, (see Figs.141, 142) at the base of the Capitol; further on Via Appia the tomb of Cecilia Metella, well known for its frieze of ox skulls with garlands, the basilica Aemilia on the Forum on the site of the ancient basilica Fulvia, and the splended basilica Julia with five-aisled interior, erected about the middle of the first century on the southwest side of the Forum by Julius Caesar with the vast dimensions of 331.3 × 160.8 ft., constructed of marble, and the new forum of Caesar on the northeast side . (See pages 118, 119). The circus Maximus was rebuilt with gr-
135 eater magnificence. Outside Rome is notable the beautiful temple of Hercules at Cori with an approximately square front portico of four Doric columns in front,(sole example of the Doric order in Roman temple architecture and indeed in the latest H Hellenistic treatment of form) and with wall piers on the exterior of the cell wall. It dates from the time of Sulla, who

also transformed (in the year 80 B. C.) Pompeii into a Roman colony. The temple of Apollo there (Fig. 157) is further a H Hellenistic creation as a peripteral Corinthian temple with podium, without termination by a rear wall, but with a front portico; it lies in a court, that was surrounded by a two story portico.

In the third period from Augustus until the last year of the reign of Hadrian (31 B. C. - 138 A. D.), Roman architecture m moves in an ascending line. Rome received a new expression; "from the city of clay arose one of marble." An inconceivable love of building was the character of the entire time. Augustus must have restored 80 earlier temples in the first years of his reign, have completed 20 other buildings and have erected 40 new temples and public buildings. He enlarged the Roman Forum, caused to be rebuilt on it the temple of the Dioscures (Castor and Pollux)(Fig. 158) and the temple of Concord, and he erected the little temple of Caesar with the rostrum (rostra Julia) placed before it. Furthermore Augustus placed beside the forum of Caesar his own, the forum of Augustus, with the great temple of Mars Ultor (avenging god of war), of w which there yet stands 18 tall columns with Roman Corinthian capitals, a portion of the ceiling and front portico in the n noblest construction of Carrara marble. Augustus also completed the theatre of Marcellus already begun by Caesar, built on the Palatine the temple of Apollo and the palace as an imperial residence,(see page 127), and finally on the Field of Mars his mighty round tomb, the mausoleum of Augustus.

Under Augustus and by his son-in-law and colleague was erected the (old) Pantheon (in the year 27 B. C.), that indeed for-
134 med the main hall of the baths named after him, the first design for public baths in Rome executed after the Grecian model; further the basilica of Neptune, of which 11 columns 42.7 ft. high and of noble form still stand. This classical early imperial period, that indicates the golden age of Roman art and literature, is characterized in style by the predominance of the Corinthian order, usually with a high base for the column and shafts frequently without flutes, matured Roman Corinthian capitals, low architrave, relatively high frieze and rich cor-

cornice with modillions. The best known architect is Vitruvius Pollio, military architect of Augustus. He issued in 16 B. C. ten books on architecture representing chiefly the principles of the Hellenist Hermogenes, was esteemed as the lawgiver of architecture, and thus exercised such a great influence on its evolution.

The direct successors of Augustus 14 - 69 A. D. also in the fostering of architecture entered into the inheritance of their great predecessor. On the Roman Forum was rebuilt the temple of Saturn, of which 8 columns yet stand, but whose Ionic diagonal capitals date from a restoration in a later period. To the palace structures on the Palatine were also added the palace of Tiberius and that of Caligula. Claudius built the aqueduct Claudia, and Nero his "golden house."

The Flavians proceeded with monumental buildings in the grand style (69 - 96 A. D.). The astonishing though depreciated "golden house" of Nero was torn down and in its place were built the great baths of Titus and the Flavian Amphitheatre, calcolosseum, a masterly undertaking in regard to suitability in ground plan, construction and architectural treatment. Vespasian and Titus laid out the forum of Peace (also called forum of Vespasian) and built therein the great temple of Peace (templum pacis). The senate and people dedicated to Titus after his death (81 7.D.) the beautiful triumphal arch at the base of the Palatine (Fig. 146) in memory of his world historical conquest of the Jews (70 A. D.) and the destruction of Jerusalem. Domitian (81 - 96) erected the temple of Vespasian, of which 3 columns still stand upright, and whose frieze bears an interesting ornamentation (Fig. 159). There further dates from him the splendid imperial palace on the Palatine, already commenced by Augustus; he also began the erection of the forum transitorium as a connection between the forum of Peace and t that of Augustus, and the temple of Minerva in it. But the f forum was only completed by his successor Nerva (in the year 98), also named from him the forum of Nerva. Of the eastern side of its enclosing wall there still stand two magnificent columns with rich relief frieze and cornice with modillions, only the upper portion rising abowe the ground.

135 An extraordinary architectural activity was developed by the highminded Trajan (98 - 117), not only in the care for his empire and people, for military roads, harbors, bridges, aqueducts, baths, but also for beautifying his palace. He caused a ridge of rock 98.4 ft. high between the Capitol and Quirinal hills to be removed and erected there the forum of Trajan with the five-aisled and bronze roofed basilica Ulpia and the very surprising column of Trajan (see page 123). By this forum Trajan threw all other imperial forums into the shade. His architect was the beghly gifted Apollodoros of Damascus, in whom Grecian art in design was united most fortunately with oriental love of magnificence.

Under Hadrian (117 - 138) the best period of Roman architecture closed with an abundance of grand and splendid structures, both in the north and in the south, in the west as well as the east of the vast empire. He was himself a great art connoisseur, built in Rome from his own designs the colossal double t temple of Venus and Roma with vaulted cell in two divisions, in which the two apses abut against each other, a pronaos at each end and an enclosing peristyle of 10 × 20 columns in colossal dimensions. In the rebuilding of the Pantheon on the s site of that erected by Agrippa and destroyed by fire in the year 110 A. D., he brought the round temple to unsurpassed completion (Figs. 160, 161). The interior of this rotunda dedicated to the highest gods (according to the stamp on the bricks built between 110 and 125 A. D.) brings the wonderful harmony of the classical antiquity into evidence in an overpowering m
136 manner. The drum is subdivided by eight deep, alternately rectangular and semicircular niches, and it has a diameter of 142.7 ft. and a height equal to half as much. The total internal h height from the floor to the crown of the dome equals its diameter. The richly coffered dome leaves open above a circular opening 29.5 ft. diameter in clear width, the so-called eye, by which an entirely ideal lighting is produced. "No temple interior on earth equals it". The portico is visibly added to the domed structure; therefore in spite of the inscription, it can no longer with certainty pass for the work of Agrippa.

In the vicinity of the capital, at the foot of the Sabine m

mountains, Hadrian caused to be erected his magnificent villa near Tivoli, the most famous in antique architecture (see page 127), and in Rome the Aelian bridge (pons Aelius) as a direct access to his grand mausoleum, already mentioned, the modern Castle of S. Angelo.

In the fourth period were completed striking innovations in architecture, which therefore appear interesting to us, since they present all the characteristics of an entirely Barocco conception of art, as we can follow them on the buildings of the transition from the late Renaissance to the Barocco style (at the end of the 16 th century). They clearly result from the endeavor to surpass even the previous great works by an increase of magnificence unknown before, in the use of variegated and costly kinds of stone and noble metals, and by the principally ornamental conception and treatment of the architectural members. The structural regularity of the columns lessens in respect to their placing and form treatment; they become an expressly ornamental motive, and as such are sometimes doubled as coupled columns. The capitals were animated by figure ornament. The friezes commonly receive a swelled and ogee section, or even what is to be particularly considered, a rich subdivision by vertical consoles. On the wall surfaces the semicircular niche finished with a shell at top plays a great part. The caps are broken, while the arch has horizontal returns at the ends (Fig. 162 a); in certain cases even the pediment is divided (rock-cut tomb facade at Petra). Likewise the surfaces of the facades and cornices occur in wavy forms, and even the "colossal order" of columns extending through two stories, so characteristic of the Barocco style, is found in some examples (Fig. 162 b). To this is added an extremely showy and extravagant richness in ornamental decoration, in which all the details exhibit Barocco tendencies. The first suggestions are already found in the buildings of Trajan and of Hadrian. If one wanders among the extensive ruins of the villa of Hadrian in Tivoli, then frequently occurs the sensation, that one might be in the ruins of a palace from the Barocco period of the 16 th and 17 th centuries A. D., in view of the marble slabs with curved borders of the panels, the rounded angles and the wide

and swelled profiles. Even the acanthus leaf assumes here and on the frieze of Trajan's forum (now in the Museum of the Baths) the Barocco alterations and the grooved surface.

The roots of this antique Barocco style are indeed to be sought in the oriental love of splendor in the East, from which they were transplanted to the West by the impulse of the gifted Apollodoros of Damascus and under the direct influence of Hadrian. Yet also here does it indicate an increase of decorative means, that must result as a necessary conclusion from enhanced show and the greatest possible development of pomp as the aim of an art tendency. It is to be regarded relatively as the stage of decay of Roman art, and so much the more, since at the same time occurs a very striking neglect of construction. But considered by itself, at least in the East, this represents the climax of its development.

During the fourth period relatively few artistically important architectural works originated in Rome. On the northern side of the Roman Forum Hadrian's successor, Antoninus Pius ((138 - 161), in the year 141 erected for his wife Faustina the elder, also dedicated to himself after his death, the beautiful temple of Faustina and Antoninus, of which yet remain the portico with 10 elegant Corinthian columns of cippoline, a magnificent frieze in relief (Fig. 130) and a simple though nobly treated cornice. Marcus Aurelius (161 - 180) built in honor of his deeds in the war against the Marcomanni and the adjacent races a column of honor, similar to Trajan's column. In m memory of the victory of Septimus Severus (192 - 211) over the Parthians and Arabs was erected the triumphal arch named after him on the northern angle of the main forum (Fig. 163), in a luxuriant richness of forms, but on which a decadence from classical art design is apparent. Grand indeed were however his palaces on the Palative, from which broad passages, galleries and massive substructures remain, and the famous Septizonium of Severus, a three story facade nearly 328.1 ft. long as a m monumental termination of the Via Appia. With the works of t the first rank are reckoned the Baths of Caracalla begun in t the year 212, the most important of the public baths of Rome, in plan and treatment a model design of the highest perfection.

(Fig. 145.). The baths of Diocletian dedicated in the year 305 even surpassed those of Caracalla in magnitude, but were inferior to them in the solution of the plan. (The majestic main h hall, spanned by three cross vaults, was utilized by Michelangelo as the transept of the church of S. Maria degli Angeli). Likewise from this time dates the so-called temple of Minerva Medica (see page 106), indeed originally a nympheum connected with baths or an imperial villa. The arch of Constantine near the Colosseum erected in the year 316, for which architectural fragments and sculptures were taken from the arch of Trajan, removed at the same time, in order to save time, produces a s splendid general effect in its excellent preservation, but is no longer satisfactory in the portions dating from the time of its erection. But late antiquity was yet to produce a work of bold grandeur, the basilica on the Roman Forum, commenced by Maxentius and completed by Constantine (about 315). (Fig. 164). It had as ground area a rectangle nearly extending from east to west and 328.1 × 249.4 ft., with an open portico of piers on the eastern side, from which three doorways opened into the interior. This consisted of a principal interior in three aisles and a semicircular apse lying opposite the main entrance and closing the middle aisle. The latter had the colossal width (clear span) of 82.0 ft. (For comparison it may be stated, that the middle aisle of the most spacious Gothic church, Milan cathedral, is 62.3 ft. wide, and that of Cologne is 49.2 ft); it was spanned by three cross vaults 114.8 ft. high above the floor. The side aisles have a width of 57.4 ft. and were each covered by 3 tunnel vaults 80.4 ft. height of crown, whose axes were perpendicular to the main axis. In this last great w work the antique architecture of Rome created the model of a three-aisled basilica and thus another type of building besides the Pantheon, and which became of wide-reaching importance for the Christian architecture commencing with Constantine the Great (305 to 324 or 337).

The love for building of the imperial monarchs and the example afforded by them exerted an influence far beyond the walls of Rome, even in the extreme provinces of the vast empire. Everywhere that the Romans had founded permanent settlements, a

are also found now the ruins of important architectural works. Thus for example from the imperial period still remain 125 triumphal arches, of which 30 are in Italy including Rome, 14 in France, 6 in Spain, 1 in Germany, 54 in north Africa and 20 in the eastern provinces. After Trajan the north African possessions, particularly ancient Numidia, had developed into prosperous civilized domains.

In Italy are still found well preserved temples at Assizi, Brescia and Pola; amphitheatres at Verona and Pola; triumphal arches at Aosta, Susa, Rimini, Pola, Ancona and Benevento.

Southern Gaul already in the 7 th century had a Grecian colony, founded by the Phoceans (the bold seamen of the Lydian c city of Phocea). Roman art found there a well prepared soil. However the Grecian tendency continued, even after the country was conquered by Caesar and entirely changed into the Roman S spirit. The remains of Roman buildings standing in Nimes (Fig-166), Arles, Orange, Vienna, S. Remy and in other places afford to us now a very interesting representation of a noble Gaulish-Roman art.*

** In middle and northern Gaul, the Celts had settled after the middle of the last thousand years B. C. These were found even in the La Terre period, when they were supplanted by the advancing Romans under Caesar.*

Likewise in Germany are still preserved numerous ruins of c castles, baths etc., most complete in the great but tasteless gate at Treves, the Porta Nigra.

The eastern Roman provinces, chiefly Asia Minor and Syria, after the reign of Augustus enjoyed a long period of peace, in which occurred a wonderful revival of Roman art. Trajan had erected on the highest part of the Acropolis of Pergamon a magnificent Corinthian temple of white marble with enclosing porticos, the Trajaneum. Hadrian especially favored Athens, completed there the great temple of Olympian Zeus between the Acropolis and the Ilissos, and erected as the entrance to his new Athens (Hadrianopolis) the arch of Hadrian, 44.3 ft. wide and 59.1 ft. high.(Fig. 167).

In the 3 rd century the centre of antique civilization was transferred farther eastward. The central power had declined

and the national character of the eastern races became stronger again. The love of magnificence in the Orient was purified by the Hellenistic-Roman spirit and enriched by the very important technical acquisitions of the West. Thus in the numerous cities of Asia Minor and Syria, in great part founded by the Romans and soon flourishing, works were produced, that even s surpassed the contemporary buildings of the West. Columnar c construction on the porticos along both sides of the main streets and the corresponding gateways came to a splendid development. The principal street of Palmyra in Syria was accompanied on both sides by a double colonnade to a length of 3723.8 ft., each row counting 375 columns. Similar streets with porticos were possessed by Ephesus, Antioch, Miletus, Sidon, Apamea and Gerasa. In the treatment of the columns was expressed a very free conception. At the great temple of the Sun of Palmyra, the columns of the portico have corbels projecting at o one third their height for the reception of statues; on the ruins of the columns of Gerasa, a series of ascending acanthus leaves surrounds the shaft above the the base.(Both motives a are again found later in the architecture of the middle ages and of the Renaissance). The grandest ruins of eastern Roman architecture are those of the sanctuary of Heliopolis, the modern Baalbec, the once great and rich city of Syria between L Lebanon and Antilebanon. The great temple of Jupiter Helioptoninus (Fig. 168) had the plan with two courts, recalling the Semitic religious buildings, a smaller hexagonal forecourt, b before which a columnar portico and a flight of steps 141.1 ft. wide as the termination of the great portico avenue, and a spacious inner court measuring 282.2 × 319.9 ft. with the great altar of burnt offerings and two basins for purifications. This altar court is enclosed at the entrance and both sides by alternating rectangular and semicircular exedras. At the fourth side and opposite the entrance stands the colossal temple, a peripteral structure with 10 × 19 Corinthian columns with a double colonneda in the front portico. Of the adjacent smaller peripteral temple, which however has the considerable dimensions of about 124.0 ft., the extremely rich doorway and the cell 65.6 ft. wide remain, one of the most magnificent Ro-

Roman interiors with the Barocco motive of a "colossal"order " extending through two stories, the stories being indicated by window-like recesses, the lower ones spanned by round arches, the upper being crowned by angular caps.(Fig. 162 b). Both t temples were founded at the middle of the 2 nd century. But the larger one never came to completion. A very free Barocco treatment is shown by the small round temple of Baalbec. Its cell wall has an animated treatment externally by round niches between pilasters; the projecting columns rest on a plinth curved inward between them, and are crowned by a similar cornice. (Fig. 162 a). Yet farther in the Barocco spirit proceed the facades of the rock-cut tombs of the East from the 3 rd and 4 th centuries. Those of Petra (east of the Dead Sea) have great width and height (up to 98.4 ft.), break the entablatures by fanciful returns, and even interrupt the pediments for structures like tabernacles.

As already mentioned (page 24), Egypt maintained its national character, even under Roman rulers. But in the remaining north Africa the Barocco style matured very luxuriant products of magnificent effect, inspired by the freedom of oriental art design. Already in the triumphal arch of Trajan in Timgad (Algeria) the arçade with columns and richly returned entablature becomes a purely picturesque and finely membered decorative a architecture. Just as beautiful is the arch of Tripolis, erected in the year 163 by Antoninus Pius to Marcus Aurelius and Lucius Verus.

In the palace of Diocletian (284 - 305) at Spalato on the eastern coast of the Adriatic Sea (see page 127), the entire cornice rises in a round arch over the middle wall colonnade, and this cuts into the tympanum abowe it. There are also found arcaded walls on columns, that are connected by continued round arches, as well as the purely onnamental subdivision of the wall by dwarf columns on consoles with a series of round arches above them as a direct prototype for the Romanesque round-arched frieze.(Fig. 169).

Toward the end of the 3 rd century the architectural activity of the eastern Roman empire was chiefly concentrated at Byzantium (Constantinople), the city that forms the natural gate-

gateway from the West to the Orient. Constantine desired to elevate it to a world city by employiyg unusual magnificence, which in nothing was inferior to Rome, so rich in the splendid architectural works of the earlier ages. Numberless temples, basilicas, palaces, government buildings, libraries, baths, g gymnasiums, honorary columns and the like were erected and equipped in truly oriental splendor with variegated marbles, bronze, silver, gold and precious stones. To a higher development passed the structural acquisitions in Vaulting, especially in dome construction. But the great mounmental course of Roman-Grecian art was never again reached; the members degenerated and the ornaments withered. The architecture passed into the Byzantine style.

In equal measure Rome and the entire West receded in importance. The last great work was previously mentioned on page 130, the city walls of Aurelian, finished in 276. At about t the same time also expired the formerly luxuriant activity in building in the western Roman provinces.

With the division of the empire by Theodosius the Great in the year 395, Rome and the antique world came to an end. New and youthfully fresh races from the North then appeared on the stage of Roman history. While they perfected their governments, there also entered into art the inheritance of dying antiquity. Thereby this, even if in much changed form, was retained for the new civilization of the German peoples.

/47 IX. Early Christian Architecture in the western and eastern Roman Empires.

1. General and historical basis.

In the same period in which the antique world under the rule of the Roman emperors rose to the climax of its power and its external magnificence, there came from its bosom a new spirit, entirely renouncing antique life and antique views of the world, that of Christianity. From the little nation of the Jews, to whom it was reserved from primitive ages to know the one God, came the formula of the Christian relegion. Under him was formed in Palestine and the adjacent provinces of Syria the first communities of believers in Christ, and from these the teachings of the Saviour quite early were transferred to the Roman capitol, in which numerous Jews were settled in the first century of our era. With unusual rapidity Christianity won a place in the world city on the Tiber; already about 64 existed there a flourishing Christian community. After this during the first three centuries had victoriously passed through a h hard period of suffering and unequaled persecution, indeed supported by the wonderful power of its faith, and the teachings of Christ had received recognition by the state (by Constantine the Great in the year 312), Christianity commenced from Rome outward its world historical and world convulsing course. Thereby also bagan a new period for western art.

But then quite imperceptibly and slowly was completed the transition from the antique to the new art, born from the Christian spirit. In the same manner, that Christianity found e extension, it undermined in the East as in the West of the empire the deeply rooted tree of antique life, which thereby gradually came to die. In the year 394 by the emperor Theodosius the Olympic games were prohibited, and in 529 the last pagan school of philosophy at Athens was closed. But the faith in the ancient gods still remained active in the people, even after the pagan sacrifices had been strictly forbidden by Theodosius (in the year 392). Thus antique and Christian art long remained beside each other, and since special types can only be produced by slow growth, the latter must at first employ pagan forms, transformed in the Christian sense and filled with

its purpose; Christianity breathed a new soul into the antique form.

But the utilization of Greco-Roman architecture resulted quite externally in complete freedom and independence of spirit. The first Christians paid the less attention in this, when in regard to the inner meaning of their faith, they opposed the formal beauty of the antique with greater indifference. They did not fear to take columns and entablatures from temples devoted to destruction, and to build therewith their Christian Houses of God.(Fig. 170) In certain cases even the entire tem-
145 ple was directly transformed into a Christian church (for example the Pantheon in Rome and the church of S. Maria Egiziaca in the so-called temple of Fortuna Virilis). Where the provision of antique columns was exhausted or was entirely wanting, the architects, trained by the view of their native works, also executed the forms created by them with greater artistic freedom than those. Thereby appeared in Early Christian art, with the simplicity required by the religious demands and the isolation in the different parts of the empire, also local and provincial peculiarities, until they passed into new national and strongly expressed art styles.

Consequently the evolution of Early Christian art presents no uniform and harmonious picture. Its home and limitations are quite uncertain, both in time and place. In the West of the empire, particularly on the classic soil of Roman art, in Rome itself and the remainder of Italy, the antique from treatment still predominated for centuries. This characterized here the period of "Roman-Christian" or "Antique-Christian"art. This bears the Roman stamp until the time, in which the overrunning of the western Roman empire by the Germans could maintain itself, until the end of the 6 th century. Its ground principles were retained until the days of the Carlovingians (end of the 8 th century), in which a new evolution was gradually prepared, the early German art. In the East, especially in the recently founded capital Byzantium, Grecian traditions more strongly appeared in the foreground, even if in combinat-
146 ion with western and oriental elements. There was developed a peculiar transition style, the "Byzantine-Early-Christian"

style, which after the 5 th century was widely extended in the Italian provinces conquered by the barbarians and rose to high importance under Justinian (527 - 565). But since the Greek and oriental orthodox church began to separate from the Roman Catholic and went on its own way, its art passed into the Byzantine - Mediaeval style. For the East the appearance and advancement of Islam characterizes the close of the Early Christian period and the beginning of the middle ages.

The evolution of Early Christian art in the western Roman e empire extended especially from Rome and Ravenna. The latter harbor city, well fortified and naturally protected by the surrounding marsh, had been made by the emperor Honorius at the invasion of the Visigoths (in the year 404) the "impregnable" imperial capital. There resided also the Ostrogothic king Theodoric (449 - 526). Since after a war of conquest by Justinian, with the fall of the Ostrogothic monarchy Italy became a province of the eastern empire (from 555 - 568), eastern Roman art penetrated into Ravenna. Thus intermingled in this city Roman-Early-Christian, early German and Byzantine influences in a rich series of well preserved monuments, which present great intesest for the history of art.

In the eastern Roman empire Early Christian art was chiefly concentrated in Byzantium (Constantinople), the residence city of the eastern Roman emperor. Yet there occurred also a very important and perhaps fundamental portion of the earliest Christian art history in Asia Minor and particularly in Syria. There Christianity developed during the first centuries a flourishing life. The lack of wood, especially in the south and in the modern Hauran, led to exclusive construction in stone, whereby pier and arched construction rose to a high development with excellent stonecutting. There still lie numerous ruined cities with entire streets, churches, monasteries, cemeteries and the like, partly in the same condition, as when abandoned by the inhabitants at the advance of Islam (in the 7 th century). Among these are found nearly all structural types of the Christian church already in a very early period, so that we h have to seek there for very important early stages of Christian art. Under Justinian they were transplanted to Byzantium.

Then probably as late offshoots of the stream of civilization introduced with the Hellenization of the West, they penetrated by the sea routes also into Ravenna, Milan and Marseilles, where they exerted a fructifying effect upon the Christian architecture of the West.

II. Evolution of Early Christian architecture and monuments

The most important architectural problem was seen by the first Christians, not in the establishment of sanctuaries for h holding divine service, for which sufficient opportunity was
148 afforded by the living rooms of well to do associates in the faith, but in the care for the burial of the dead in accordance with their views, separately from the cemeteries of the pagans. Since burial within the limits of the city was prohibited, the roads outside the walls for miles were bordered by tombs, the use of fertile land was regarded as sinful, and indeed also becamse the Christians desired to bury in rock-cut tombs after the prototype given by the Divine Saviour after the Jewish rite, were arranged common burial places or cemeteries in subterranean passages and halls, the catacombs, which likewise served for assemblies at the memorial services and as places of r refuge in time of need during the persecutions of the Christians. First with the recognition of the Christian religion (in the year 312) commenced the evolution of Christian architecture, and indeed it at once proceeded with animated activity, t that experienced strong assistance from onstantine the Great.

The most important architectural undertaking of the Early Christian period is the creation of the Christian church building. For this ground forms were developed, one of which, the basilica, is the chief structure of the Christian House of God in the West, while the other form, the central building, with a great dome characterized the churches in the eastern Roman empire and in the Orient. From the additions to the churches already in the Early Christian period were derived monastic a architecture. In the architectural treatment and decoration of Early Christian churches and of contemporary secular buildings was completed the transition from the Roman and Grecian antique to the German and the Byzantine mediaeval styles.

The catacombs (Fig. 171) were arranged outside the city and

chiefly in soft tufa according to definite plans in uniform d
distribution, like a subterranean network of streets with many
branches, extended for miles by the sextons (fossores). The
passages had an average width of 3.28 ft. and a height of 9.8
to 13.1 ft., and they were lighted and ventilated by small li-
148 ght shafts.(Luminaria). Several stories frequently lie above
each other, being connected by stairways. Along both sides of
this passage are cut rectangular recesses (loculi) to receive
the bodies. After burial these were closed by marble slabs w
with the inscribed name or mystical symbols. For prominent
tobs, for example for princes of the church and martyrs, the
passages were widened or separate sepulchral chambers (cubicu-
la) were arranged. Generally such graves are formed as reces-
ses in the walls and are characterised by a round arch (arcos-
olium). In the paintings on the walls and ceilings of the cat-
acombs very remarkable examples of the oldest Christian art h
have remained to us. But on the whole men scarcely went beyo-
nd the most extreme needs in the arragement and treatment of
the interiors. An architectural development resulted but sel-
dom. The Crypt of the Popes in the catacomb of S. Calixtus n
near Rome was treated like a chapel with four columns attached
to the side walls and an altar with marble balustrade; the sq-
uare crypt of S. Januarius was lined with small marbel plates.
Since the tombs were under protection from the law, the downw-
ard stairways and entrances next the street could be correspon-
dingly indicated. But later, when the persecution of the Chr-
istians also extended to the burial places, they were careful-
ly concealed. At the end of the 4 th century burials in the
catacombs diminished, and they entirely ceased at about the m
middle of the 5 th century. Thenceforth the cemeteries were
arranged beneath the open sky. Among the numerous cemeteries
in the vicinity of Rome the most important are those of Ss.Ca-
lixtus, Sebastian, Domitilla, Priscilla, Agnes, Januarius and
Praetextus. Similar plans are found near Naples, Chiusi, Mil-
an, in Sicily, Alexandria and other places.

Over the catacombs were erected the first Christian houses
of prayer, of which some already existed at the beginning of
the 3 rd century. Later and about the end of that century,

they had become numerous. Concluding from the few remains, these cemetery basilicas (basilica cimiterialis) or triapsal cell (cella trichora) rose from a square ground plan, extended on three sides in semicircular apses, the fourth being open at first, but later receiving a small addition (Fig. 172). Ruins of such structures have remained in Rome over the catacomb of S. Calxitus (basilica of S. Calixtus, of S. Cecilia and Soteris), and on Via Tiburtina (basilica of S. Symphorosa). With the very modest dimensions the cell could only be intended for
149 divine service, while the believers occupied the open space before it. As prototypes of Christian church buildings, these little tomb chapels are only to be considered under limitations.

In the 4 th century was developed the ground type for the p principal structures of Christendom, the basilica.

Its form of ground plan was derived from both the Roman forensic (see page 117) as well as from the palace basilica, and also frequently from the Roman private house, whose atrium, alas and tablinum exhibit a striking similarity in the arrangement of the interior. Even coincidences with the Egyptian temple are indicated. But we can rightfully regard the Christian basilica as a peculiar and independent creation of Christianity, that directly originated from the problem set before the architects, of creating covered interiors, that might receive the community gathering to the common celebration of the love feast, and whimh men might everywhere follow the divine service and understand the spoken words. For the crypts (subterranean churches) arranged in the catacombs, whose ground plans were indeed exclusively devoted to the requirements of Christian worship, have entirely the same subdivision of the interior, as later became the rule in the basilicas; the main room for the community, the presbytery and the apse for the clergy. (The name of "basilica" for the Christian house of prayer first occurs in the time of Pope Julius I, at the beginning of t the 4 th century. The Latins had the names of "ecclesia, conventiculum and dominicum".).

The Christian House of God thus had from the first a purpose entirely different from the religious buildings of antiquity. Those were exclusively dwellings for the deities worshiped in

representations, into which the priests alone were permitted to enter; to the people they chiefly appeared by their external architecture as consecrated gifts to the gods. But the Christian church formed the place of assembly for the devout community. The centre of artistic development thus lies in the internal architecture.

In the ground plan of the Early Christian basilica (Fig. 173) is apparent the endeavor by the arrangement of the rooms behind each other to afford opportunity to the believers to gather together and to propose accordingly to participate in the sacred ritual. In the complete plan, one enters from the street through a small portico into the atrium, a large rectangular court surrounded by porticos on all four sides and containing a fountain (cantharus) at the middle for ablutions. The free space was laid out as a garden, from which the court also received the name of "paradise". In the court remained the penitents, until after sufficient internal purification they were permitted to enter the House of God; here was also baptism received. From the portico lying opposite the entrance (outer portico) three or five doorways, placed at the centres of the different aisles, led into the church proper.(The name comes from the G
153 Greek kyriakon, House of the Lord, stoa kyriaka, i.e., Hall of the Lord). One first passed into the nave, a rectangular and elongated structure, subdivided into three, or in unusually large basilicas into five, aisles by two or four rows of columns,(Fig. 184), in which the middle aisle occupied the chief space and was much higher. Unconsciously are the eyes of those entering directed by the rows of columns and the entire treatment of the interior to the foreground, in which they look through the triumphal arch, resting on massive piers of columns, and fall upon the most important part of the interior, the choir (sanctuary, presbytery or priests' house; see Figs. 174 , 175). The choir was originally formed as a great semicircular niche, the apse (tribuna concha, exedra, bema), but soon by a transverse aisle (transept or cross aisle) inserted between the apse and triumphal arch, was enlarged to the height and a also generally to the width of the middle aisle. At the centre of the apse, the perspective sight point of the entire plan,

stood the altar, a stone table (mensa) erected on several steps, with a canopy likewise of stone and resting on 4 columns, the tabernacle or ciborium. The priests had their places on the chairs placed around against the wall within the apse. On the axis and behind the altar stood the elevated seat of the bishop, the cathedra. The choir was always raised by several steps, and also frequently the transepts. The need of space usually led to an extension of the choir, so that a portion of the floor of the nave lying before the altar was included in the choir, being raised higher and enclosed by a balustrade. (Fig. 174). The lower clergy and the choir of singers took their positions there. Erected at the sides of this front choir were pulpits, the ambos, for the reading of the epistles and the gospels. The places on both sides of the altar and outside the choir enclosure were reserved for the favored classes, on the left being the matroneum for distinguished women and nuns, on the right the senatorium for prominent men and monks. The side aisles lying next these remained open to other women and men. Many basilicas had further in the interior near the entrance a narrow transverse vestibule, the narthex, separated by a low parapet wall for the catachumens, the pupils already advanced in the Christian faith. Towers were not yet added in the construction of the Early Christian basilicas. Only after the 6 th century was a bell tower (campanile), in Rome with square ground plan and in Ravenna mostly with a circular one, was erected beside the basilica but without connection with it. For the arrangement of the basilica on the site, orientation soon became the rule, i.e., the extending of the longitudinal axis from west to east, so that the apse was turned toward the rising sun. Whenever possible, men took care, that the altar stood over the tomb of a martyr (confessio, later crypt; see page 149); at least relics of saints were placed within the altar stone.

This normal ground plan of the western basilica is not invariably retained. The atrium frequently was omitted and replaced by a simple portico. The eastern basilicas almost always have a vestibule (narthex); on the other hand the transepts are omitted; above the arcades of the middle aisle are general-

generally erected galleries for the women. Likewise in some earlier basilicas of Rome (S. Agnes) are found such two story side aisles. The north African buildings commonly have instead of an apse a rectangular ending of the choir. In Ravenna the transepts are lacking; on the other hand the side aisles in part end in apses. The portico becomes a vaulted vestibule, called ardica. Here in plan and treatment the Roman influences intermingle with the Byzantine.

In the superstructure may be seen very plainly, that the entire attention of the architect was devoted to the treatment of the interior. The architectural details were regarded throughout as unimportant. The walls were constructed of bricks, tufa or ashlars without particular care. The columns were taken from antique buildings; there were considered merely as s supports and were set in rows without much reference to their forms, whereby long shafts were reduced, short ones lengthened, and to equalize them were employed bases and capitals of different heights. Over the columns were placed antique entablature blocks directly beside each other, just as they could be obtained (S. Lorenzo near Rome, Fig. 170), or (regularly after the 5 th century) the round arches were set directly on the c
152 columns (Fig. 175), originally chiefly without mouldings. The high walls of the middle aisle (clearstory) received no architectural treatment of any kind, aside from a flat band extending above the archivolts. In the uppermost part, the "clearstory", they were opened by round arched windows, that were closed by curtains and transennae, i.e., thin transparent plates of marble with small circular or netted cut openings. By these the interior received the desired magical lighting.

The covering followed in the apse by a choir vault in the form of a spherical half dome, in the other interiors by horizontal wooden ceilings divided into coffers and richly decorated by colors and gilding. But most commonly the beams and rafters remained entirely free and visible, with a corresponding treatment in color.(Fig. 175).

The exterior of the basilica is characterized by the raised middle aisle with gable roof, the low side aisles and the front portico with shed roof sloping against the middle aisle, the

round or polygonal apse with conical or pyramidal roof, and t the detached bell tower.(Figs. 176, 186). All is extremely s simple and without ornament, excepting the mosaics on the facade. The entire value is in the interior. In regard to the latter, the basilica counts among the most prominent internal creations, that architecture in general has to show.

The central building represents the second chief form of the Early Christian House of God. This architectural type is already complete in itself, for which the antique gave distinguished models (Pantheon), presents a form very suitable for baptisteries (baptismal churches) and mausoleums (tomb churches); it also usually came into use for these in the West. But for the community churches its choice produced the great difficulty of organically adding the choir with the altar to the building. The altar should naturally occupy the most prominent place in the domed interior, thus be at its centre. But men could not so decide and therefore extended the domed interior by an added choir, usually built in the form of a great niche.
153 Thereby was expressed again the desired longitudinal direction, but also the ground idea of the central structure, the relation of the whole to the centre disappeared. Yet indeed the central building ensured a high monumental effect by the esthetically important and just perfect solution of the form of the ceiling.

The ground plan exhibits in the usual form in baptisteries and tomb churches a unified interior over a regular octagon or a circular area with four niches arranged at right angles, that frequently project externally like apses (baptistery of S. Giovanni in Fonte near the cathedral at Ravenna). In a more developed plan the clearstory wall of the domed interior rests on columns, that are connected by round arches. The interior is extended below by a low and likewise vaulted aisle, so that also here is obtained a certain arrangement in three aisles. (Tomb church of S. Costanza near Rome). On the community churches constructed at a considerably greater scale, the symmetry so strongly accented by the central plan indicated an entrance recess of equal width opposite the choir, as well as two side niches, whose axes intersect the longitudinal axis at the cen-

centre.(Fig. 177 a). In this manner was obtained a certain a
agreement with the plan of the basilica with transebts. In
the ground area of the interior was then expressed the form of
the Greek cross, important in Christian symbolism, that final-
ly became the scheme for the Christian churches of the East.
In the most primitive undivided plan, the two arms of the cro-
157 ss intersected, so that a square was formed at their crossing,
which was spanned by a dome (over the inscribed circle), while
the arms of the cross received tunnel vaults (a well preserved
example of this ground form is afforded by the tomb church of
Galla Placidia in Ravenna). With the great capacity for vari-
ation and addition in central buildings, the full completion
was contemporary with a great number of manifold solutions for
the plan. Until in the first half of the 6 th century (i.e.
until the erection of the church of S. Sophia in Constantinop-
le), the polygonal form of the middle space was preferred. Th-
is was formed by a system of piers set at the angles and conn-
ected by round arches, on which rested the clearstory and the
dome. Around the main interior extended a usually two story
aisle within a likewise polygonal (concentric) but also later
square external structure with niches in the angles.(Fig. 177
a). The niche motive found extensive employment everywhere,
in a particularly effective way also with the columns set in
a semicircle extending outward with arcades between the inner
piers. The most mature solution of the plan for Early Christ-
ian central architecture was attained in the church of S. Sop-
hia at Constantinople, built by Justinian and dedicated in
537, in which the domed structure enters into close combinat-
ion with the system of the basilica.(Fig. 177 b). In order to
obtain there a kind of middle aisle, the domed square main in-
terior was extended by two great semicircular niches of equal
width, on whose longitudinal axis adjoins at one side the ent-
rance exedra toward the west, and at the other the choir apse
at the east. Right and left of the middle domed interior on
the axis of th cross aisle lie side divisions, separated from
the main aisle by two rows of columns, and extended in front
and rear, so that they form side aisles in a manner. Thus the
interiors of S. Sophia make a basilican impression, even with

the strong accenting of the central ground idea.(Also see Fig. 182).

The ground plans of the later Roman churches of the Early C Christian period retain the division into three aisles with the choir apse on the main axis, and mostly with apsidal side rooms (pastophoriums). But they group the interiors in the f form of a Greek cross about a central square, whose vaulting by a dome on pendentives with the basal circle inscribed in t the square (Fig. 178) now met with no difficulties. The arms of the cross were covered by tunnel vaults. The vestibule was made especially prominent by doubling, or even a three aisled plan of the narthex.(See Fig. 192).

With the execution of the buildings of Syria constructed of cut stone, the erection followed with the almost exclusive use of bricks for the walls and brick ribs with concrete filling in the mode already practised for vaulting. Thereby were made secure such parts of the structure, that were particularly affected by tension and compression by corresponding strengthening and by buttresses. In certain cases (tomb church of Galla Placidia, baptistery of S. Giovanni in Fonte and S. Vitale in Ravenna) the vaults were built much lighter by clay vases inserted in each other and grouted. In the construction of the ceilings as vaults, so that they stood in corresponding alternations with the interiors and the frequently massive piers, lay the chief problem of the architects; this was solved by them in great part in a magnificent manner. In forms of vaults are found the tunnel, cross, choir or niche vaults and the dome, the latter but rarely in polygonal form as a cloister vault. Nearly always was the hemispherical dome chosen, indeed in the first period as a somewhat depressed and elliptical section line, but later in the full rounding of the hemisphere, and indeed both over square as well as polygonal areas, that were changed into the circular form by corbellings or spherical spandrels.(Pendentives). (also see page 106 and Fig. 178). The domical vaults were frequently intersected by window openings in a series extending around them.

On the exterior the dome remained partly uncovered, and it was also partly covered by tiles or a lead covering. By the

massive dome vault, that like a colossal helmet spanned the nucleus of the centrally arranged masses of the walls, was substantially determined the entire external appearance of the c central structures. Otherwise (with the exception of the churches in Syria) the exterior remained without any architectural and artistic decoration. The high monumenta, effect is indeed based on the organic subdivision of the structural masses and on the harmony of proportions.

The architectural treatment omits in the Early Christian church buildings the refined feeling for perfected handling of forms. The rules employed through so many centuries for the proportions of columns and entablatures, intercolumniations and the like are no longer in force. The entire centre of gravity of artistic magnificence no longer lies in the architecture, but in the color effect of formative symbolical representations, well harmonized to the interior. In compasison with this the architectural details must entirely recede. Thus in Early Christian art the classical details echo but slowly. Their forms were at first neglected, then weakened and replaced by new forms, in which may finally be recognized an entirely free treatment.

The changes in style may best be followed in the capitals. In the western Roman empire those of Ravenna are especially i important. Antique sculptured pieces were hard to obtain there; they were in part brought from oriental workshops. Thereby the Byzantine influence made itself felt quite early. Among the new capitals there are found those, that are derived f from the bell shape of the Corinthian capital, but instead of the Grecian acanthus is a tasteless, ornamentally ribbed and notched foliage.(Fig. 179). Besides these also already occur (after 528) the entirely simple Byzantine type of capital with impost block, in which appears the form of a cube diminished downward or folded and rounded, so that the circular section of the column directly passes into the square upper area. The ancient organic relief treatment is thereby dropped. The basal form is only covered by shallow cut foliage and network or basket-work with the insertion of Christian emblems (Fig. 180). This die impost capital was developed on central buildings in

the East and is chiefly employed in them, but also gradually appeared in basilican designs.

From the capitals directly rise the arches in the Roman monuments. B.t in Ravenna is inserted a trapezoidal intermediate block, enlarged upward, the impost block. This was typified in Byzantine art, perhaps as a reminiscence of the broken entablature block of Roman architecture in projecting columns, b but also perhaps from purely structural reasons, since the form of the column was originally intended for the reception of a horizontal entablature and appeared to require such an addition, when used for another purpose. The round arches thereby seem stilted; they rest lightly and elegantly. (First proved is this impost block in the subterranean water reservoir near Eschrefije Sokaghy in Constantinople, dating from about 421). Among other architectural innovations are further the first n noteworthy beginnings of an external subdivision of the wall, composed of narrow vertical projections (lisenes), that are connected by arches beneath the edge of the roof (arched frieze). They are found on the basilica of S. Apollinare in Classe near Ravenna,(Fig. 186), and repeat on the exterior the rhuthmic movement of the columnar arcades, the chief motive of Early Christian architecture.

The ornamentation develops in the interiors a religious magnificence corresponding to its purpose. If the means allowed it in any way, the floors were laid with variegated mosaic patterns of marble tiles, and the plinths of the wall surfaces in the apses and also wherever possible in the transepts were faced with brightly colored marble slabs. But the chief ornamentation constantly lies in the mosaics, with which were finished the choir vaults, the triumphal arch and the upper surfaces of the apse, the transepts and even the nave. The Romans had scarcely employed this art except for floors. But the Early Christian architects composed with the colored and gilded glass enamels, that were pressed into the lime coating of the masonry, representations of the Saviour, the apostles, the saints etc,, and thus they created an unusually permanent wall ornamentation, harmonized excellently with the architecture and the dignity of the House of God, and which produced a solemnly ear-

earnest and often thrilling effect by the simplicity of the forms and the strong connection of the forms rising from the transparent blue or gold grounds.(Fig. 181). The greatest richness of the art of Early Christian interiors is found in the Byzantine central buildings, and among those S. Sophia in Constantinople presents the most splendid example. (Fig. 182). F For the columns were employed the most select and finest blocks from the temples of Asia Minor. The piers and wall surfaces
158 are faced with costly slabs of the finest stone up to the cornices below the vaults. But the vaults themselves gleam in g gold mosaics with Biblical representations and ornamental borders in the character of fabrics wrought with gold and of unequaled magnificence.

The Early Christian ornament (Fig. 183) verifies the influences of the antique, both in the feeling expressed for harmony as well as in many details. The ground form of the acanthus leaf and particularly its scroll work are retained; to these are added new motives, chiefly the symbolical meaning; the vine and vine branches, the palm of victory and the victor's wreath, olive branches, the lamb, stag, dove, cock, peacock, ship, fish and the like (recalling Biblical occurrences and comparisons or the name of Christ). Very common are cross forms of all kinds and the monogram of Christ, composed of I and XP, the two initials of the Greek designation of Christ, mostly in connection with an A (alpha) and O (omega); "in Christ is the beginning and the end"; compare the monograms in Fig. 183. During the rule of the Lombards in upper Italy (568 - 774) the
159 German elements to be mentioned later entered into Roman-Christian ornamentation.

Byzantine-Early-Christian art adhered closely to Grecian and oriental prototypes. But the acanthus leaf evermore became f flatter and received a sharp edged and spiny treatment. The chief motive was formed by a Hellenistic scroll frieze, interwoven in oriental linear forms, with ever more stiff and pattern-like treatment, until it finally entirely was intertwined in a geometrical network.

The most important monuments. -- Of the basilicas are but f few remains preserved in the western Roman empire, that allow the original impression to be recognized with certainty, since

the high walls of the middle aisle resting on isolated colonnades did not resist well the severe earthquakes and the conflagrations, to which they were much exposed by the wooden roofs, and the entire design made very easy the construction of restorations and additions.

In Rome the most important of the five aisled designs are :-- S. Paolo-f-l-M (Fig. 184), the most spacious of all basilicas, grand in design and equipment, portico, nave with 80 granite columns, transverse aisle and apse, begun in 386, destroyed by fire in 1823 as far as the choir, then rebuilt from 1828 according to the same plan and in the same forms. The ancient basilica of S. Peter from the 4 th century, arranged according to a similar ground plan and of approximately equal size as the church of S. Paolo, replaced during the Renaissance by the new church of S. Peter.

To the three aisled basilicas belong (. Pudenziana, apparently constructed about 145 (?) by Pope Pius I in a hall of the baths, but already with archivolts over the columns; S. Maria Maggiore, a spacious three aisled structure with architrave c connections above the columns and from the second half of the 4 th century; S. Sabina on the Aventine, placed in the year 425 on the foundations of the temple of Juno, with 24 antique columns, and aside from the mostly walled up windows of the middle aisle remaining in its original condition (Fig. 175); S. Lorenzo-f-l-M (Figs. 170, 160, 185) from the end of the 5 th century, and S. Agnes before Porta Pia (7th century), both with two story side aisles (galleries); S. Maria in Cosmedin, built in the 6 th century, transformed in the 8 th century into a three aisled plan with a beautiful square campanile of 8 stories erected later (end of 11 th century); here occurs the first example of the alternation of columns and piers in the arcades and the design of a crypt (sepulchral cmhaber) under the choir; S. Maria Antiqua on the Roman Forum, built in the 7 th century in the atrium of a library formerly connected with the temple of Augustus, with segmental apse, flanked by two chapels; S. Pietro in Vincoli, first plan from the year 442, giving a representation of the complete three aisled basilica with transverse aisle and three apses. From the later time (9 th centu-

century) also date S. Clemente (Fig. 174), built on a three a aisled earlier church with completely preserved choir design (choir, ambos, altar etc.), and S. Prassede with horizontal e entablature above the columns and with three massive brick arches spanning the entire middle aisle for supporting the ceiling and roof and resting on piers extending higher.

Plans for a single aisle without columns are rare in Rome. To these belongs Ss. Cosma e Damiano, built 326 - 330 with the utilization of the temple of Romulus on the Roman Forum, and S. Balbina near the baths of Caracalla and from the 6 th century, both with a semecircular apse.

In Ravenna:-- S. Apollinare in Classe, the former port of Ravenna, built 534 - 541 (Fig. 186), with enclosed vestibule, t three aisled nave with wide middle aisle and a great apse, internally semicircular and externally a half decagon, and a detached tower, the classical example of the Early Christian basilica. The columns were made on the spot and already lack t the entasis; S. Apollinare Nuovo, the most important basilica erected in the city by Theoderic the Great, dedicated in 504 (see page 169 below and Fig. 181), on a similar plan with two side apses, now walled up; the 24 columns came from Constantinople. S. Agatha (417) with a tribune, inner portico, external vestibule and round tower. S. Giovanni Evangelista (425) and S. Francesco (about 450), both with square towers. S. Spirito from the time of Theodoric the Great.

In the remainder of Italy are also still found important basilicas in Milan (S. Ambrogio, built in 382), in Albano, Brescia, Fiesole, Spoleto, and in Torcello near Venice.(See pages 195, 196).

In the eastern Roman empire until the end of the 5 th century, the basilica was the principal type of the Christian House of God. Of the buildings in Constantinople, the church of S. John was erected in 463 and represents a normal basilica with narthex, three aisled nave, galleries over the side aisles, a and an apse internally circular but externally polygonal, without a transverse aisle. On the lower columns rests a straight and continuous entablature, that like the capitals adheres closely in its forms to the Roman Composite order, but with Byz-

Byzantine carving of the foliage. The galleries open toward the middle aisle with round arches. In Thessalonica is arranged similarly the church of S. Demetrios from the middle of the 5 th century, but with round arches above the columns, already with impost blocks over their capitals.

Particularly noteworthy are the buildings in inner Syria. In the southern part of this province (in the Hauran) the exclusive use of stone early led to the introduction of piers with connecting round transverse arches, on which rest the ceilings of great granite slabs.(Basilicas at Tafka and Schakka, both three aisled, the latter without apse). In northern Syria stone construction early combined with the wooden beam ceiling. By the transfer of Grecian-Roman forms to the stone, hard to cut (chiefly granite), from their simplification and change gradually originated a peculiar internal and external architecture, that exhibits many similarities to the form character of the Romanesque period. The churches are constantly three aisled. The apse frequently lies within the rectangular enclosing structure, so that rooms like chapels occur at both sides. This plan is shown by the basilica at Rouiheha, in the midst of an enclosed court, arranged like the Grecian temple precinct, and at Tourmanin, whose richly treated facade with a great round-arched portal and a loggia of columns above it, which is flanked by two tower-like structures, produces an earnest and monumental effect. At the pier basilica at Kalb Luseh, the treatment of the external apse exhibits an architectural style, that may be regarded as the direct prototype for t the early Romanesque form treatment in the West. This development is found in the form of a Greek cross with four arms, each three aisled and with three apses arranged on the longitudinal axis of the great church at Kalat Sim'an (Figs. 187, 188 a, 188 b, in which the internal system as characteristic of the Early Christian churches of central Syria presents especial interest, as well as prototypes of the early mediaeval architecture of the West.

In Palestine are also found certain five aisled basilicas, whose founding is still referred to the period of Constantine (4 th century), like that of the five aisled basilicas at Rome.

To these belongs the still well preserved church of the Nativity or of S. Maria at Bethlehem, arranged in cross form, the arms being rounded by apses.

163 The numerous buildings in northern Africa frequently vary f from the ground scheme. They are of smaller dimensions, but are frequently five aisled with rows of columns or piers. The apse is frequently rectangular, included, and is sometimes repeated at the western facade. The free treatment leads to many important novel forms. On the Coptil (Early Christian in Egypt) churches occur instead of the round arch, stilted and broken, even the pointed arch. In the basilicas of Theveste and of Tipasa are arranged piers directly beside the columns supporting the arcade walls of the middle aisle, and in the basilica of El Hayz in the Libyan desert, the columns appear in intimate connection with the piers, projecting from them as half columns. Here is also found a very early example of the compound pier, later carried to a high development in the middle ages.

Monuments of Central Architecture. -- In Rome:-- the previously mentioned tomb church of S. Costanza and the baptistery of the Lateran, both from the 4 th century; S. Stefano Rotundo with a peculiar ground plan (perhaps derived from an ancient market hall), a circular central room being surrounded by 22
164 Ionic columns, that on a horizontal architrave support the upper wall. Around it extend two concentric aisles. The axes are emphasized by spacious exedras between the outer row of columns and the enclosing wall.(Fig. 189).

In Nocera in Southern Italy:-- S. maria Maggiore, built of antique dressed blocks, a circular domed structure with doubled columns set radially with outer aisle and added small tribune. In Perugia:-- S. Angelo, similarly arranged as the church just mentioned, with an accenting of the principal axes by widening the arches above them.

In Ravenna:-- the already mentioned baptistery of the Orthodox or S. Giovanni in Fonte (5 th century), and that of the Arians or S. Maria in Cosmedin (6 th century), both on the same ground plan; further the likewise previously mentioned tomb church of Galla Placidia (built 440). The chief work is S. Vitale, erected 540 - 547, one of the most important conucents

of Christian architecture. The main interior has a regular o
octagon of 49.2 ft. clear width as its ground area, at whose
angles rise massive and lofty piers, on which rests the hemis-
pherical dome. At seven sides of the octagon intermediate sp-
aces extend in semicircular niches, each interrupted by two c
columns, connected by round arches and indeed in two stories.
(Figs. 190. 191). The niches terminate above in choir vaults.
Radially around the central space is a two story enclosed ais-
le, externally octagonal and of about 114.8 ft. diameter. Th-
is is interrupted at the eastern side of the octagon by the
plan of the choir with the semicircular apse projecting beyond
165 the enclosing wall. Opposite the choir lies the vestibule .
(Now walled up and set diagonally). The interior is splendid-
ly treated. The shafts of the columns lack entasis. The cap-
itals have the specific Byzantine form with impost block.(Fig.
191). The walls are faced below with variegated marble and in
the choir are adorned by very valuable mosaics.

In Milan:-- the famous church of S. Lorenzo, in the basal p
plan dating from the period of 559 - 563 (in which Milan was
under Byzantine rule), but now existing only in an incomplete
restoration from the 16 th century. The ground plan was ind-
eed influenced by eastern Roman models. It substantially con-
sists of a square middle room, extended on all four sides by
niches interrupted by rows of columns and surrounded by a par-
allel two story corridor. The crown is formed by an octagonal
polygonal dome, that rests on concentric and corbelled arches
in the cut off corners of the square. The entire structure is
a grand creation, that served the masters of the Renaissance
as a model.

In the East the previously described church of S. Sophia (ch-
urch of the Divine Wisdom; Figs. 177 b and 182), built (532-537)
by Anthemios of Tralles and Isidoros of Miletus, denotes the
climax of Byzantine architecture. It belongs to the greatest
works of genius in architecture of all times. The plan is in
the form of a Greek cross and is already found in the church
of the Apostles at Constantinople, designed as the burial pla-
ce of Constantine the Great, restored by Justinian and imitat-
in the church of S. John at Ephesus.(The church of the Apostl-

Apostles was a model for S. Ambrogio in Milan, and this again in its turn indeed influenced the tomb of Galla Placidia in Ravenna). In the church of S. Irene in Constantinople, likewise erected by Justinian, the middle aisle was covered by two domes lying beside each other. At the church of S. Sophia in Thessalonica in the ground form of the main interior, the Greek cross is more strongly emphasized, and the narthex is also extended along the two sides. The Church of Ss. Sergius and Bacchus in Constantinople, begun in 528 (Fig. 177 a), has a ground plan similar to that of S. Vitale in Ravenna, but is enclosed by a rectangular external structure with projecting apse. In the interior niches are arranged on the diagonals. For the plan of S. Sergius are found prototypes in the Early Christian churches at Bozra and Ezra in Syria, the former completed in 512 and the latter in 515. The later types of Eastern-Roman= Early-Christian churches (see page 154) with low domes and the arrangement of side domes over the angles of the Greek cross and sometimes also at both sides of the vestibule are represented by the church of S. Nicolaus in Myra (Fig. 19c), the church of S. Clement at Ancyra, and the church at Cassaba in Lycia. These already indicate the stage of transition to Byzantine-Mediaeval art.

The first monastic plans (monasteria) * were derived from t the dwellings of the clergy, the necessary houses for pilgrims, shelters for watchmen etc., built in the immediate vicinity or added to the churches. The strict isolation of the life and the similarity of the requirements gradually led to architecturally completed plans. In these a court occupied the centre, placed at one longer side of the church for reasons of suitability, around it being grouped the cells as separate dwellings, as well as the larger community rooms, the chapter hall for a assemblies, the refectory (dining hall), the library for the preservation of the sacred books etc. For the enclosure of t the cloister court by porticos, particularly valuable beneath the southern sky, excellent prototypes were presented in antique columnar courts. From these originated the cloisters, later peculiar to all monasteries. Among the numerous Early Christian monasteries, the most important are those at Theveste (Egypt) and Schakk in Syria.

** Cloister from Latin claustrum, "an enclosed place". Greek monasterion, originally "a separate structure", later synonomous with "cloister".*

Early Christian secular architecture employed forms developed in the churches; in the ornamentation is even found the monogram of Christ. Yet besides the ruins of cities and of dwellings of Syria, partly extending back into the pagan period, a and the great subterranean water reservoirs of Constantinople, built with hundreds of columns, only unimportant remains have come down to our time. The columns of the so-called basilica of Hercules and the palace of Theodoric in Ravenna are already to be counted with the monuments of the early German period. (See page 170).

Early Christian art is the fruit of an extremely impulsive period filled with mighty changes in all domains of intellectual life. Their importance and magnitude do not appear in their form, but in their meaning. Architecture was no longer the proper object for the representation of the beautiful, as once in the classical times of Grecian and Roman antiquity, b but only a means for the expression of the higher spiritual idea of Christianity. A vast material domain was closed to a art. But it was not permitted to win its own circle of forms. What it brought to light in new ideas was only to come to full maturity in later centuries.

X. The early historical and Early Christian Architecture of the Germanic Peoples.

About the year 100 A. D. the Roman historian Tacitus wrote down in his Germania" all his knowledge relating to the Germanic peoples. These then occupied central Europe between the Danube and the Oçean, between the Rhine and the Weichsel, and far beyond the frontier, that now separates modern Germany from the Russian empire. They were divided into a great number of races, each of which formed a separate state by itself. Their religion was polytheistic, like that of the Greeks and Romans. Their prayers and offerings were originally brought to the gods in sacred precincts, on mountains, at springs and rivers, only later in temples also. The chief gifts of mind and soul, which appeared in the religious representations, the expressed family tendency of the common life toward democratic and social life together, the manifestation of racial peculiarities, and in the first political arrangements, rendered this people in a high degree capable to enter on the remains of the dying antique, and to become the bearers of a new and elevated civilization.

When shortly before the end of the 2 nd century B. C., the Germans for the first time came into contact with the Romans, they found themselves still in the condition of the later iron period. Tacitus says of their dwellings, that they were rectangular and rude wooden structures with steep roofs and a single room, constructed of unhewn trunks connected together by similar girts, and which were sunk into the earth or supported by stones. At the centre stood the hearth. With the different races of people occurred numerous diversities. The Celts (page 168) dwelt in slight bound houses, whose framework consisted of piles connected together by interwoven work. The West Goths (Visigoths) in the lower Danubian provinces allowed (in the 4 th century) the gable roof to project beyond the outer walls and to terminate in a shed roof supported by columns and forming a passage. In the far North among the Scandinavians, where the primitive German element remained present, to the great room with the hearth was attached an anteroom. The building constructed entirely of wood as a blockhouse had no

windows, with a single opening in the roof for the admission of light and escape of smoke. This arrangement was transferred to the northern temple, whose principal room became the cell of the gods with the altar of burnt offering at the centre and the images of the gods at the rear wall; the anteroom was enlarged to a nave, in which occurred the sacrificial feast.

It appears certain, that also to these primitive buildings were quite early transferred the mode of ornamentation shown on the utensils and ornaments of the bronze and iron periods. But the architecture of the Germans only passed to a higher development at that time, when they permanently came into contact with the civilization of the antique peoples. This epoch began with the migration of nations, a very important occurrence for the history of the world in the West, that great movement of the German races to the West and South, and which was the result of the need of land for the increasing agriculture in the wooded regions, and directly to the invasions of the Huns from the East. In its course (375 - 573) the different peoples took possession of the provinces of the collapsing Roman empire after severe battles with the hereditary occupants.* The Visigoths settled in Spain, the Ostrogoths and after them the Lombards in upper and middle Italy, the Vandals in northern Africa, the Franks, Burgundians, Allemans, Thuringians etc. in northern Gaul and in Germany, and the Anglo-Saxons in Britain.

* *In Italy with the Italians (Umbrians, Orcans, Latins), in Spain and southern Gaul with the Iberians, whose primitive home was indeed Asia Minor, in middle and western Europe with the Celts, who probably before the first thousand years came from the East and settled in the region of the upper Danube a and of the Rhine to the Weser, then pressed forward to the West into northern Gaul to the Ocean and the British islands, f from these abodes terrorizing the entire civilized ancient world by their plundering forays.*

All these races already before or during the migration of nations were converted to Christianity, which then developed in them its strong moral power. But the realms founded by them on foreigh soil were mostly of brief duration. The farther

they were removed from their native regions, the more rapidly
was completed their decay under the unfavorable climate and t
the entirely changed conditions of civilization. Only the Fr-
anks, who kept themselves isolated longest, came out of the m
migration of nations without being weakened; they formed the
only state erected by the Germans on the mainland, in which t
the individuality of their nature was retained. To them like-
wise fell in consequence the part of leaders among the Christ-
ian peoples of the West.

The Germans indeed became masters of the former Roman posses-
sions. But in a similar sense, as that in their time the Gre-
eks won the intellectual victory over the Romans, the high civ-
ilization of the subjugated likewise conquered the barbarians.
Most clearly expressed this appears in the Italian provinces,
to which was assigned the most varied fates from the 5 th to
the 8 th century under the overflow of the German armies. Th-
ere the architects of the new masters commenced with a direct
imitation of antique works. Also the Visigoths in southern
Gaul and in Spain, the Vandals in Africa, the Burgundians in
the Rhone country depended on Roman architecture. Yet men man-
ifested in even the earliest works, even if still in uncertain
touches and attempts, the fisst steps to a new principle of t
treatment dictated by the art invention of the Germans.

These had brought from their northern home a certain mystoc-
al tendency, an animated feeling for nature, enjoyment of str-
ong effects, preference for construction in wood and the work-
ing of wood, and a peculiar ornamentation developed on utensils
and ornamental articles, particularly by the Celts, and consis-
ting of linear bands and interlacings, interwoven scrolls with
animal and plant forms, which they also soon transferred to t
the stone construction taken from the antique. Thereby from
the first this received under their hands a German-Çeltic fla-
vor.

Roman technics were comparatively soon made their own by the
northern architects. But the architectural subdivision they
approved without understanding. Their later works bore the s
same relation to the white marble palaces of the South, just
as the brightly colored showy garments of the Germans, gleaming

with rubies, garnets and gold, did to the white and majestically floating toga of the Romans. In the gradual permeation of the ancient civilization by the new, this evermore won the supremacy under the leading art spirit of their rulers, until f finally entirely individual art forms of specific northern stamp appeared. Thus the early German art became a bridge betweeen the antique and the mediaeval world.

But the transition was but very unequally completed, since the appearance of the different races in the history of art and the course of their art practice did not occur with equality. Therefore it is not possible to draw sharp limits in time and to consider early German art in a unified representation; we must pursue it on the monuments of the different peoples.

The fisst works of a monumental arlhitecture produced by a German race, we meet with in the buildings of the Ostrogoths in Italy. After the overthrow of Odovaker, a German military leader, who enthroned the last western Roman emperor Romulus in the year 476 and made himself master of Italy, they founded in the year 493 a great kingdom extending far beyond the frontiers of Italy, with Ravenna as the capital. Their king Theoderic the Great conceived the idea of imparting to his fellow countrymen the benefits of the ancient civilization, and of producing a union of the foreign elements. He devoted the most lively inteeest to architecture. His court church of S. Apollinare Nuovo has already been mentioned among the Early Christian buildings of Ravenna (Page 160). It still differs in nowise from the Roman or Byzantine works of that time. But a creation of a particular kind is the tomb of Theoderic near Ravenna, erected about 525 (Fig. 193), a massive two story central structure. The decagonal lower story comprises a Greek cross plan covered by tunnel vaults. The upper story is decagonal below and circular above, and is reduced to leave a passage 3.94 ft. wide. It contains a circular interior and is covered by a colossal block of Istrian limestone, cut as a low dome with 10 ears, 36.0 ft. in diameter, 8.2 ft. high and weighing about 400 tons, whose elevation alone represents a splendid achievement in technics. Around the upper story formerly extended a low arched portico resting on consoles with dwarf

columns. (The projecting stairs are additions of a later time). The ornament extending around on the heavy cornice (Fig. 194) already occurs in the Northern-German style of decoration, while the lower round arched niches with impost moulding, the a arcade gallery and the bold profiles exhibit a manner of treatment, such as reappears in the Romanesque period. Thus this building, whose covering stone recalls the dolmens of the prehistoric period, then appears like a monumental Hun's tomb derived from the antique and northern elements. In the broad a and quiet landscape around Ravenna it is striking as a peculiar monument of earnest power and height. From the rich activity of Theoderic in private architecture are still derived the eight granite columns of the so-called basilica of Hercules on Piazza Vittorio Emanuele in Ravenna with very freely transformed composite capitals, two of which bear the monogram of Theoderic. On the contrary the so-called palace of Theoderic standing near the basilica of S. Apollinare Nuovo, a two story brick structure with round arched portal and blind arcades (Fig. 195), according to more recent investigations, is no longer w with certainty of the time of Theoderic, but is probably to be referred to the beginning of the 8 th century.

After the decay and fall of the Ostrogothic kingdom, the Lombards invaded Italy and established their rule there, which they maintained for more than 200 years (568 - 774). But they developed a lively architectural activity, particularly in the later time. They took into their service the Italian mechanics and stonemasons settled in the region about Lake Como, the Comacine masters, and even gave an orderly regulation to the style of architecture usual there. Yet the architectural designs produced experienced no substantial enrichment; the antique ashlar construction notably deteriorated under them. They showed themselves more fertile in architectural decoration, w when from the combination of Early Christian symbols with Byzantine motives and Northern-German elements, they created an entirely individual relief ornamentation, which toward the end of their sway developed into an independent style, but only attained full maturity later at the end of the 8 th century. This is chiefly of three strands of interlaced bands of a frequ-

frequently irregular interweaving in connection with plant and animal forms, mere rarely with human figures, the latter then being in a very primitive and formless treatment, the whole executed in low relief, so that the drawing remains and the ground is merely incised. A characteristic example of this style is presented by the ciborium of the altar of S. Eleucadius in the left side aisle of the basilica of S. Apollinare in Classe from the beginning of the 9 th century. (Fig. 196). This Lombard decorative art spread from Italy into southern Gaul and far into central Italy, where occur numerous remains of ciboriums, altar facings, choir enclosures and the like. As a chi-
172 ef work is to be mentioned the baptismal fountain of the church of S. John at Gividale, constructed in the year 737.(Fig. 197).

In the buildings of the Visigoths in Spain, where the Iberian primitive inhabitants, the Vasconians (Basques) had early mixed with the invading Phoenicians, Carthaginians, and later with the Romans, and where under the rule of the latter, particularly under Trajan (who was himself a Spaniard), Hadrian a and Marcus Aurelius, the first rich and splended architectural activity of Spain had commenced, very different art tendencies crossed, so far as may be known from the few still existing m monuments of the postroman time. The small three aisled basilica of S. John Baptist at Banos de Cerrato near Valladolid ((Fig. 198), from the year 661 according to an inscription, exhibits dryly imitated Roman Composite capitals, at the altar niche being a slightly horseshoe arch, with incised ornaments in the frieze in the style of Lombard art. After the invasion of the Moors (in the year 711, see page 218), Christian art maintained a footing only in the extreme North. The Early Christian basilicas constructed there mostly have arcade porticos along the longer sides as a Spanish peculiarity, in which echo Moorish motives, but in the interior have the plain archaic German incised ornamentation. As the most important monuments are to be named:- S. Salvador at Oviedo, built in 802 by the Visigothic master Tioda, and the somewhat later church of S. Maria de Naranco there; the three aisled Benedictine church of S. Salvador de Valdedios near Villaviciosa, dedicated in 893,

without transverse aisle, the choir separated from the nave by columns and arches, and the three aisled church of S. Miguel de Escalada near Leon with transverse aisle and from the 10 th century.(Fig. 199).

At the conquest of the British isles, the Anglo-Saxons entered a country,in which Christianity had already struck firm root after the beginning of the 5 th century. But this was driven by them from the south of England into Ireland, where it found a very fertile soil, on which a rich ecclesiastical life developed, which soon powerfully reacted, at first against Anglo-Saxon England and Scotland, but then also against the continent. (The Christian faith was brought by Irish monks of the 6 th and 7 th centaries, Ss. Columbanus and Gallus, the founder of the monastery of S. Gall, to the Alemans by S. Kilian of the Franks and S. Rupert to the Bavarians. Willibrod and Boniface were Anglo-Saxons).

Stone construction was already practised in the British isles at a very early time, indeed in direct connection with the megalithic monuments,(See Stonehenge, page 8), originally with uncut stones and later (after about the 6 th century) with cut stones and the use of mortar. The oldest dwellings of this k kind were round structures with the form of beehives or rectangular plans in the shape of inverted boats. Enclosing walls of Cyclopean masonry and frequently of unusual beauty surrounded the inhabited area.

The designs of dwellings were models for the first Christian religious buildings, the oratories. These are relatively small structures, mostly consisting of but a single cell, among which that of S. Gallerus in the county of Kerry in southwest ireland (Fig. 200) has been remarkably well preserved. On it as well as on the primitive doorway at Maghera (Fig. 201) appears the same construction, that we have already learned to know in the earliest stone architecture of the civilized nations of antiquity. On the oldest Christian churches of Ireland and Scotland, mostly containing but a single room (for example S. Carinin in Ireland), certain rude window forms of rough vertical, or stone slabs set inclined toward each other, there recall the stone masonry of the archaic period. Beside and in

the Irish-Celtic stone architecture, soon after the invasion of the Saxons from the continent, this peculiar mode of construction, characterized by the use of wood, makes itself apparent; the log construction composed of wooden trunks and beams laid on each other, and of half timber work with walls of sills, posts, girts, purlins and stone panels in the openings thus formed. Thereby early British art secured a proper strutural basis. The stone supports employed to bear the covering slabs or round arches over the openings in walls permit the i influence of an older structural method to be clearly recognized in their early round forms like balusters.

Further intermingling impulses come from Roman-Early-Christian art by means of the Christian faith. Already at a very early time the Roman basilica found entrance. For the church of S. Martin at Canterbury and the monastery church at Wearmouth (from the year 670) workmen were brought from Gaul and Italy, who carried out the execution in ashlar construction, the so-called "opus Romanum". The alternation of piers and columns in the walls of the middle aisle, the galleries and a tower over the crossing of the middle aisle, and the transverse aisle becomes the rule. Central buildings are only rarely found (for example in Hexham).

At the Irish and Scotch churches, as in Ravenna, stands a r round slender tower, diminishing upward and terminating with a conical roof, at a distance from the church.* The decoration betrays a mixture of the native Celtic-Irish ornamentation with antique or Byzantine-Early-Christian and Merovingian-Frankish elements.

* *Such towers were carefully constructed with ashlars set in mortar, and in the early period of Irish architecture were built in considerable numbers, evidently as places of refuge during the forays of the northern pirates (Vikings). At the beginning of the 19 th century, 118 of these towers could still be proved by their remains.*

The great development of the early German art, like that of political and ecclesiastical history, was completed in the kingdom of the Franks. As such is designated at about the middle of the 3 rd century A. D. the entirety of the peoples on t

middle and lower Rhine. They divided later into several races,
of which the Salians dwelling on the lower Rhine pressed onward
toward the southwest in the course of the 5 th century, and f
founded a powerful state under the Merovingians (481 - 751).
In the year 486 this put an end to the last remnant of Roman
rule in Gaul, sujugated the Romanized Celts settled there and
the Romans, and then without regard to the frontiers of the r
races, extended farther toward the southwest and east, over
the Visigoths dwelling on this side of the Pyrenees, over the
northern portion of the domain of the Alemans, over the Thurin-
gians, Burgundians and Bavarians. An unusual upward course w
was taken by France under the Carlovingians (751-843), especi-
ally in the splendid time of Charlemagne (768-814). This pow-
erful monarch saw his most important problem on the one hand
in the thorough internal organization of his kingdom and its
extension to its natural frontiers, on the other hand in the
fulfilment accodring to his conception of the duties falling
to him as the protector of the Christian church and in the ex-
tension of Christianity.

He subjugated (774) the Lombards threatening the Pope, then
he received in the year 800 the Roman imperial dignity, conver-
ted the opposing Saxons, and reduced them under his sceptre;
finally the gathered the entire western West into a world emp-
ire, that stretched from Garigliano in southern Italy and Ebro
in Spain to the North Sea and the Eider, from the Atlantic Oc
ean to the Elbe, the Bohemian forest and the Raab in Hungary.
In this condition the Frankish empire was likewise of brief
duration. Its history ends with the division carried out in
the year 843 under the grandson of Charlemagne; then began the
history of the eastern Franks (Germany) and of the western Fr-
anks (France).

With the Christian faith Christian architecture also found
entrance and zealous care in the Frankish lands. Already the
Merovingians carried on building actively. Yet even of this
170 very slight remains are now proved. The cathedral at Treves
(Fig. 202), a square with sides about 131.2 ft. long, divided
by 4 massive columns with cross arches into a middle and two
side aisles, covered by a horizontal wooden ceiling and furn-

furnished with an apse added later, originated from a pagan j judgment hall. At the ancient church of S. Martin, completed in 470 but now destroyed to the foundation walls, the apse was apparently surrounded by an arched portico supported by columns, and which was transformed in an imposing way in the 9 th century (page 181). The quite irregularly shaped baptistery and the ruins of S. Generoux at Poitiers still permit the recognition of the picturesque treatment of external wall surfaces by forms in stones of different colors.(Fig. 203). For the remaining masonry the use of small rubble (3.94 - 6.30 ins), the "opus gallicanum" was the rule.

The evolution of Merovingian church buildings was indeed influenced in a determinative way by Milan and in a more distant way by the forms of the Hellenistic-Christian architecture of the Orient transmitted by the sea route through Ravenna.(See page 146). The entire plan follows entirely the basilican scheme. On certain churches was already completed the transition, very important to the history of architecture, from the former T-shape (crux commissa) of the Roman basilica to that of the Latin cross (crux immissa or capitata) of the mediaeval basilica. This innovation was caused by the insertion of a s- square bay between the transverse aisle and the apse.(Compare Figs. 173 and 208). For the first time it appears on the church of S. Germain des Pres at Paris, dedicated in 558, which the Frankish king Childebert I had caused to be planned in cross form "in accordance with the life-giving cross". The abbey church of S. Denis near Paris built by Dagobert in the year 629 still had the T-form. The ancient church of S. Peter in the citadel at Metz, erected at the beginning of the 7 th century and notable for the ornamental fragments found there, consisted merely of a three aisled nave with choir. On the contrary as proved by documents for the monastery church in Rebais, founded in 634, the abbey church at Fontanella, founded in the year 648, and the church of the monastery of Gemeticum near R Rouen, built in 655. It appears as an innovation produced by the Benedictine order, by which the House of God in its ground form was already impressed with the image of Christ's church. "Doubtless purely practical reasons also determined this, the

expressed need for an enlarged choir space with regard for the ever increasing clergy and the extending development of ecclesiastical magnificence.

The architectural forms in general exhibit a dry imitation of the antique columns and entablatures without substantially changed treatment. In the ornament is combined Roman-Early-Christian symbolism with northern and Lombard motives in the well known incised low reliefs, which is indeed likewise characteristic for the contemporary art of the East.

An animated upward course was taken by the Frankish activity in architecture under the Carlovingians. The powerful impression, that Charlemagne received from the imposing architectural works of Italy, aroused in him the desire, with his endeavor to restore a west Roman empire in the sense of the antique idea of the state, to likewise bring about in architecture a renewal of the Roman power. He wished to educate his Franks to a higher civilized life, and he surrounded himself at his court with a staff of learned men and artists, by whom classical culture was fostered and cherished. Among them the art-loving Einhard took the most important place. He zealously studied the law books of the Roman architect Vitruvius Pollio. (See page 134). What great interest the mighty emperor devoted to the question of church architecture is shown, in that he established thorough regulations for the founding and erection of churches and instituted careful collections for their maintenance. Models and planswere prepared and the conduct of the erection was entrusted to practically qualified officials. From the capital at Aix-la-Chapelle must arise an imperial residence city equalling Rome; it was adorned by very magnificent buildings, whose splendor was mentioned with amazement by the Italian poet Petrarch during his journey through Germany in the 14 th century.

By favor of circumstances the principal work of Carlovingian architecture has been preserved to us, the imperial chapel of Chalemagne in the central building of the cathedral of Aix-la-Chapelle. (Fig. 204). The plan shows numerous similarities to S. Vitale in Ravenna (see page 164); the dimensions on the ground are also approximately the same. Yet one must not consi-

consider the imperial chapel as an imitation of S. Vitale, as generall occurs; at least the structural and architectural details exhibit no accordance whatever. The basal design indeed came from the intellect of E..hard; as architect is mentioned Otto of Metz, and the erection occurred between 796 and 804. Around a regular octagonal central building of about 49.2 ft. clear width and 32.0 ft. high (to the imposts of the vaults) is placed an aisle carried in two stories and enclosed within a regular polygon with sixteen sides. Since each side of the inner polygon had one of the external polygon parallel to it and of equal length, the ceiling was subdivided into 8 squares and 8 triangles, which received in the lower story cross or triangular compartment vaults. The high upper story above this is covered by steep tunnel vaults rising toward the central structure; these effect a transfer of the side thrust of the dome to the outer walls. The dome does not follow the Byzantine scheme like S. Vitale, but the Roman polygonal dome (cloister vault, see page 106), while the side surfaces are rounded inward in a circular arc and close at the vertex. The small and likewise two story altar recess projecting beyond the sixteed sided polygon with the dimensions of its side had to give place to a spacious choir in the 14 th century. The opposite and somewhat larger vestibule is flanked by two round stairway towers, organically added to the body of the structure. For the internal construction the imperial master had columns and costly materials brought from Italy, particularly from Ravenna over the Alps. The columns were set in two tiers above each other in the high arcades of the upper story. The cornices a and mouldings remain very simple and poor. So much the more richly is the internal mural decoration treated with marble facings and mosaics. Of the entire costly equipment, only the splendid bronze grilles of the gallery balustrades have escaped destruction. Like the Early Christian churches, the exterior received no particular architectural development. The construction is excellent, the substructure and the angles of the polygon in ashlars, the remaining masonry in quarried stone. It proves that men had then mastered the antique technics with great centainty.

The imperial chapel at Aix-la-Chapelle on its part was regarded as a wonderful building and therefore was frequently imitated. Of the churches that arose under its influence are to be named as important and yet remaining to our times; the church at Ottmarsheim in upper Alsace, erected between 1000 and 1050, externally octagonal, but in the interior (aside from t the already cushion shaped capitals) with surprising fidelity imitated from the chapel at Aix-la-Chapelle at a smaller scale; the western choir of the minster at Essen (between 947 and 1000), of which three sides completely agree with those of the central structure at Aix-la-Chapelle in the form of the gallery, the arrangement of the columns and forms of capitals.

The ancient and venerable church of S. Michael at Fulda (820-
179 822) is a central building, that in the ground plan of the superstructure and of the crypt follows the prototypes afforded by the Roman tomb churches of S. costanza and S. Stefano Rotundo at Rome (page 163; Fig. 205). The circular middle area of the superstructure is surrounded by 8 columns, that are connected by round arches and support the clearsory wall and dome. Around it extends a low aisle terminating in the circle. The crypt is arranged in two concentric rings, the outer one being subdivided transversely into rooms, around a stumpy middle column supporting the inner annular vault. Bases and capitals, the latter with heavy impost slabs, exhibit dry imitations of antique forms. *

* *Independently of these central structures have been developed in the far North peculiar types of their system; the round churches still standing on Bornholm in southern Sweden and Jütland from the early German period. These buildings are to be regarded as independent northern creations.(See Volume II).*

Beyond the time in which these three monuments originated, the idea of the central building embodied in the imperial chapel at Aix-la-Chapelle has fertilized but very little the later German-Mediaeval architecture. The western men could not be satisfied with the central plan, where the altar, to which naturally was assigned the centre as the most prominent place, must be moved back into an added choir with regard to the divine service. The basilica corresponded to it infinitely better, and therefore they constructed with it the further evolution

of Christian church architecture. In this now appeared very important innovations, that chiefly concerned the form of the ground plan.

The plan already shown by certain Merovingian buildings as the Latin cross or cross shaped basilica, gradually became the rule. In order to prepare for the body of the saint a worthy place suited for veneration, there was given to his tomb an i imposing form. In some Early Christian churches of Italy (for example S- Apollinare in Classe and the cathedral of Torcello), the tomb of the saint of the church (see page 151) forms a small vaulted cell beneath the altar with a passage in annular form extending along the wall of the apse, which in Merovingian buildings have cells like catacombs, connected by passages.
In the Carlovingian period the tomb became a spacious hall divided by detached supports, the crypt. It frequently had a cross form and a three aisled shape with apse, like the upper church. The choir loying over it consequently was generally raised by several steps, whereby it was made the more effective.

If the church were dedicated to two saints, as frequently occurred, then since the eastern end could no longer be extended, men decided to enlarge the plan at the western end by erecting there a second choir with crypt opposite the principal choir. In this basilica with double choirs, the portico and western facade of the Early Christian period were omitted. The main entrance was then transferred from the middle to the front end or even the side of the side aisles. Finally the western portion was further enlarged by a second transverse aisle inserted between the nave and the western choir.

The construction likewise passed into noteworthy innovations. Instead of the columns previously employed, if the structural material did not prove to be sufficiently resistant, or the technical training of the workmen did not offer sufficient security, the strong square piers appeared as supports of the clearstory walls, either in continuous arrangement or in rythmic alternation with columns.

Of particular importance was the inclusion of the towers in the structure. The Early Christian churches indeed had bell towers in their immediate vicinity. Hence the assumption appears justified, that the Germans did not create the tower mot-

motive for themselves, but transferred it from Italy and merely employed it in a different way. Still in northern churches the evolution of the western towers from a defensible round t tower placed before the nawe with several stories of rooms for using weapons, into a broad rectangular tower covering the entire facade, and finally to double towers with portico and gallery between them, may be followed by steps from the round castles and earliest church buildings until in the 10 th century. Therefore we should regard the towers as a primitive German motive, that also in the middle ages attained its highest development on German soil. In the Frankish kingdom the bell tower was frequently placed above the crossing square of the nave a and transverse aisle, and it was also soon flanked by two side towers.

Of the numerous buildings erected under Charlemagne's animated care of Christian church architecture or soon after him, but few are intimately known to us, and then are mostly so by written mentions. Among the latter we possess a document of high value in the history of architecture; the plan of the monastery of S. Gall. It originated in the year 820 or shortly before, is executed on parchment in red lines, explained by written notes, and comprises the entirety, of which it certainly represents an ideal scheme (see page 183). The ground plan of the church (Fig. 208), a three aisled basilica with a transverse aisle, choir square, eastern and western choir apses (this for Peter's and that for Paul's altar), takes thorough care of the needs of the monastery by the indication of numerous altars. In opposition to the loose proportions of the dimensions of the Early Christian basilica, it already has that fixed normal plan, which was always retained later, by which the crossing, i.e., the square crossing of the middle and transverse aisles was repeated once on each side as a transept and four times in the principal direction as a middle aisle, the side aisles each having a half square in width. Two round towers (R) stand in symmetrical arrangement at the sides of the main entrance on the western facade, without being directly c connected with the church. Behind them lies an annular open portico with a garden. Besides this plan nothing further now remains of the building.

Among the western Frankish churches, the cross form with doubled choir and doubled transverse aisle is established at the abbey church of the monastery of Centula (S. Riquier), built 793-798. At the ancient and venerable basilica of S. Martin at Tours (page 176), the most famous church of the ancient land of the Franks, the arched portico around the apse was transformed into a choir aisle with radially arranged chapels, in order to make possible a very near view of the veneration of the corpse of the saint to the masses of the crowds of believers, and that rested in a sarcophagus placed in the choir. C Caused by purely reasons of appropriateness, we thus meet here with the first example of the enlargement of the choir with a series of chapels, so important in the middle ages.

Of the Carlovingian basilicas on German soil, the monastery church at Fulda, dedicated in 819, had a doubled choir and transverse aisle. At the old cathedral of Cologne (begun 814) and at S. Emmeran in Regensburg, doubled choirs are proved to have existed. But on smaller parish churches was also retained the T-shaped ground plan, thus on the two basilicas built by Einhard in 827 and 828 at Steinbach and Michelstadt, and e at Seligenstadt in the Odenwald. Considerable remains of the former are yet preserved (Fig. 206). It was a three aisled pier basilica after the Early Christian scheme with open portico, transverse aisle, apse and a spacious crypt, which exhibits the crux capitata, differing from the T-shape of the upper church. To the columnar basilicas belongs still the church of S. Justinus at Höchst near Frankfort-a-M, completed in 840, a above its Corinthian capitals being set a trepazoidal Byzantine impost block, and further the foundation church at Corvey on the Weser, erected in 844, on which the west facade is already developed with a gallery between two facade towers.

On account of the extremely rare condition of monuments from the Carlovingian period, a building remaining to us in its former condition is particularly important, the gateway portico at Lorsch on the Bergstrasse (mountain road). (Fig. 207). It once formed the passage to the forecourt of the church completed in the year 774, at the dedication of which were present Charlemagne and his wife Hildegarde. The direct imitation of

the Roman architectural system is not to be denied here. Before the piers of the gateways covered by depressed round arches are set half columns with Composite capitals after Roman m models, that bear a but slightly projecting belt course. The low upper story is subdivided by small Ionic pilasters with angular gables extending in a zigzag line. A simple modillion cornice crowns the whole. The tapestry-like facing of the facade with white and red slabs is especially noteworthy; it evidences the love of the Germans for picturesque effect, that is expressed in the same manner in the Merovingian buildings.(Fig-203).

Besides the church buildings, the monastery buildings stand in the foreground of artistic activity. With determining influence upon the evolution of western monastic existence were the rules established by S. Benedict, by which was prescribed the community life of the monks. But the problems of the monastery were not alone limited to enhance the cure of the soul; the monasteries should rather become central seats of endeavors to elevate civilization. On the happily located Monte Cassino (southern Italy) had Benedict founded in the year 529 the first western monastery, which became a highly esteemed place of culture, from which the richest artistic impulses were borne beyond the Alps. Likewise the Benedictine monasteries erected on Frankish soil, among which those at Oentula in Normandy, Fontanella near Rouen, Tours, Fulda, S. Gall and on the Reichenau stand in the first line, showing themselves as very impoortant starting points for all western evolution of civilization and of art.

The already mentioned plan of the monastery of S. Gall presents us with full conclusions (Fig. 208). The middle of the whole is occupied by the cloister court (h), surrounded by the vaulted open porticos, the cloister aisles (c), that on the n north side being closed by the nave of the church (A, see page 180),and on the other three sides by the inner buildings of the monastery (the inner clausure). Among them the eastern contains the dwelling of the monks on the structure (B), lying in the exterior of the transverse aisle of the church, below indeed being the chapter (assembly, convent) hall with the warmed living room of the community (calefactorium), over it being

the dormitory (sleeping hall). On the northern cloister aisle lies the refectory (dining hall D), beside it (in the angle toward the West) the kitchen (F), and on the western cloister w wing the cellar (E). This arrangement was retained during the entire middle ages as a fixed standard, whereby indeed according to the conditions of the ground, the cloister court sometimes came to be on the northern side of the church (Fontanella). At the eastern choir were found at one side the sacristy with parament chamber (K), on the other side being the library and the writing room (L). Around this nucleus plan were grouped in the outer court, which was enclosed by a fortified continuous wall ("outer clausure") often defended by towers, the remaining structures for living, educational and assistance purposes, as well as for the houshold requirements of the monastery. For as far as possible, these were to be fulfilled by the labor of the members of the monastery. On the north side of the church and beside the transverse aisle and the choir lay the abbot's dwelling (S), before it being the school house (T), then the guest house (U) with its dependance (V), opposi- on the south side of the entrance to the church being the pilgrims' house (1) with kitchen (2). Eastward and opposite the dwelling of the abbot was that of the physician (Z), opposite the choir being the great hospital (W), then (Y) the school of the novices (for the education of the pupils received) and beside it the cemetery (16). The entiee southern side of the outer court received the buildings for housekeeping, the bakery and brewery (6) next the monastery kitchen, the mill (8 and 9), the cooper's and tinner's shop (3) beside the cellar, behind the refectory being the mechanics' shop (10). The eastern side was utilized for the agricultural structures, the stables (4, 5, 18), barns, sheds (17) and the servants' house (19).
In exact accordance with this plan the monastery design could not be erected, since the conditions of the site were not considered in it. But it affords a very instructive example of the great architectural ideas, that the first period of western monastic architecture established in the days of Charlemagne. Nothing more remains of the buildings themselves, as well as of most other monasteries of this time.

Charlemagne also displayed an animated zeal in the erection of palaces, of which the most important were those at Aix-la-Chapelle, Ingelheim, Nymwegen, Frankfort and Works. Likewise of these but very few remains may be proved, from which it is generally deduced, that the chapel and a large hall structure with a series of buildings enclosing some courts formed the most important parts of the imperial palaces. Into the city hall at Aix-la-Chapelle are built certain parts of the Carlovingian hall, an elongated rectangular room with an apse at t the western end and a horizontal wooden ceiling. With greater certainty may be restored the hall building at Ingelheim (erected between 807 and 817). The plan forms an elongated rectangle subdivided by two cross walls into a large hall and two s-smaller rooms. The former has the shape of a Roman basilica, whose relative dimensions are accurately preserved (95.6 × 47.8 ft.), thus the internal length being twice the width, as prescribed by Vitruvius), with a projecting semicircular niche having the width of the middle aisle, that occupies 3/5 the width of the hall. On two rows of stone columns in each, connected by round arches,rests the horizontal wooden ceiling. The two smaller rooms before this hall, indeed intended as entrance hall and vestibule, were divided by internal free supports parallel to the side walls,into three aisles of equal width. We have no further data relating to the architecture, aside f from the Corinthian capitals with impost blocks, that were indeed introduced from Ravenna,-- they are the same capitals as those of the church of S. Justinus at Höchst-a-M. The animated statements of contemporary writers concerning the magnificence of the imperial palaces with long rows of antique columns and the splendor of marble and of noble metals, in combination with the art forms of other architectural fragments and monuments of the Carlovingian period, awake in us the conception, that this substantially means a reanimation, a renaissance of the antique, entirely produced by the personal will of the monarch, but which, even if unconsciously, was gradually permeated by the national German individual life.

Charlemagne's court art fostering stone construction, looking backward and preserving antique traditions, penetrated into t

the people but slightly. They firmly adhered to their native wooden construction, which already in the time of the Merovingians had attained to a certain technical maturity. We have indeed, on account of the perishable material, no remains thereof, but important written evidence. Venantius Fortunatus w was bishop of Poitiers about 560, gave high praise in his poems to the flourishing cities on the Rhine, whose "masterly framed buildings" with the rooms paneled to protect from wind and weather, and the airy galleries surrounding the building on all sides, "richly appearing from the master's hand and artistically carved" * , which deserves more regard, since he was a widely traveled Italian, well acquainted with the splendid structures of his native land. We must likewise assume, that in the days of Charlemagne wooden architecture found itself on a high plane; it is also known, that he himself sent skilled workmen in wood to the South, while he called (Wälsche) masons and stonecutters from thence for his northern stone buildings. Thus the traditional German ornamentation, based on contact with t the Roman antique, received from the Early Christian series of forms of Italy, permeated by eastern and especially by Byzantine elements; (Fig. 209), obtaining that training and enrichment, by which it became the basis for the decorative art of t the early Romanesque period.

* *Away with you, with the walls of ashlar stones, much higher appears to me a masterly work, here the wooden architecture. A paneled room, protecting us from wind and weather, the carpenters permitting nowhere a gaping crevice. Otherwise only stone and mortar together protect us; here the friendly forest affords it to us. Airily surround the exterior of the building the stately galleries, richly appearing from the master's hand and artistically carved". Venantius Fortunatus.*

In the southern provinces of the Frankish empire, in Italy was expressed under the Carlovingians in ever increasing measure the penetration of the German art spirit. Indeed it showed itself there less in the plan of the buildings, than in the adoption of that style of decoration, which was developed by the Lombards in upper Italy, but first after their rule reached full maturity, and then also extended widely in middle Ita-

Italy. At least the Roman and also in part the Byzantine elements of Italian ornamental art of this time are richly permeated by northern motives, just as also the contemporary sculpture is entirely penetrated by the German spirit.

Still the basilican type on Italian soil in the 8 th and 9
186 thecenturies come to no further development. But one peculiarity, borrowed from the Byzantine churches, makes itself apparent, the termination of each of the three aisles at the east by a separate apse. Among the monuments a rebuilding of the famous Milanese church of S. Ambrogio stands in the first place; from it remain only the three apses (completed 855), retained in the later and still existing structure. In the 10 th century appeared almost a stop in the previously strikingly decadent art works of middle and upper Italy, and when these awoke to new life about the middle of the 11 th century, they soon assumed that mighty upward flight, with which enters the period of the style of the Romanesque middle ages.

/86a. XI. BYZANTINE ARCHITECTURE.

1. General and historical basis.

Longer than to all other provinces of the former Roman world empire, there remained to the eastern Roman kingdom its possessions in the Balkan peninsula, protected against invasion by the Germanic peoples and the shock of Islam pressing forward from the Orient. The ancient high civilization of the Greeks a and Romans maintained itself longest there. But its conclusion in the Byzantine empire shows in a striking degree the thorough transformations experienced by an isolated art tendency, if it be transferred to a different site of civilization. The new empire comprised the frontier provinces of the ancient Roman empire, which lay in part in the East, partly in the West. On the border line between the East and the West was founded Byzantium as the capital, in which was subsequently perfected the civilized life of the new empire. This was from the first equally accessible to influences from the East and the West. But the political centre of gravity of eastern Rome lay in the Asian provinces. Therefore Asian influences showed themselves stronger than European. Hence it came, that all political bases, still the same in both halves of the empire, the same form of government, the same laws and the same religion, were very soon filled with a different spirit in the eastern Roman empire, from that in the western. In it the new monarchs eagerly grasped the classical civilization as the inheritance of the decaying empire, and sought to make Christianity useful, giving to it a new and developing life. But in eastern Rome the government assumed an Asian-despotic character, that was but slightly softened by Christian customs. Puerile courtly and servile ceremonial dominated all forms of life and the entire nature of the state, by whose bureaucratic restraint the free development of powers was very much restrained. The contrast between the East and the West, already based on the thoroughly different conceptions of life, became even more acute and gradually led to a deep separation of the two developments of civilization, that also finally (in the year 1054) was expressed in a complete separation of the Greek church from the Roman.

The general picture presented by Byzantine architecture th-

therefore lacks that mighty, flourishing and progressive course of development, that one might expect in an empire with an existence of a thousand years. The actual highest period lay in the days of Justinian, with whose grand architectural creations, yet falling in the Early Christian period, a very promising basis was created for Byzantine art. But the later p period never advanced beyond this, even in its best works. T The image quarrel (726-842) caused by puerile religious disputes about the statement of Christian dogmas and by dynastic c causes between the iconoclasts (image breakers) and the iconodules (image worshipers), wherein the latter remained victors, weakened the empire for more than a century and paralyzed all advances in artistic activity. Only after its termination and under the Macedonian emperors (867-2056) did this take a new upward course, when the oriental influences were checked and the classical, Greco-Roman tendencies came into the foreground.

The splendor of the empire diminished in the succeeding four centuries. In the year 1204 the crusaders conquered Constantinople and founded the "Latin empire"(1204-1261). This was indeed reconquered by the founder of the last Byzantine dynasty, Palaeologuses (1261-1453). But under them the Byzantine empire sank ever lower, until at last entirely paralyzed, it fell in the contest with the Turks penetrating beyond the Bosphorus. -- But in contrast with the distracted condition of the West, the Byzantine empire, until late in the second thousand years, enjoyed a unified and complete civilization, far exceeding the acquisitions of contemporary western peoples. Its capital developed an artistic magnificence, whose dazzling splendor exercised an even magical effect upon the crusaders from the West.

II. Evolution of the architecture and the monuments.

The centre of architectural activity lay in church architecture, as during the Early Christian period. For it was determinative the central building, at first indeed in the form in which it was represented in S. Sophia and the works of the 7 th century. In the later period it experienced many changes, which however brought no substantially new tendencies into the treatment of interiors, but chiefly related to the structural froblems of the substructure of the dome. The joyful formative

creative power of the western middle ages found no counterpart in contemporary Byzantine architecture. Likewise where the 1 latter was transported by commercial relations farther to the West on another soil, as to upper Italy and Sicily, it passed into no notable advanced development. Only the peoples of the East, recently converted to the Greek church in Armenia and Russia, developed peculiarities, that chiefly related to the domain of ornamentation.

The ground plan of the Byzantine church in the arrangement of the interior follows the design already given in the previously mentioned Early Christian churches at Thessalonica, Myra, Ancyra and Cassaba (see page 166). For the main interior the form of the usually regular Greek cross with short transverse arms is determinative (Fig. 210). Before this lies on the West a single or double narthex. The eastern arm of the cross is extended by the presbytery, which ends in an internally circular, but externally often polygonal and projecting apse. The two side arms of the cross are no longer separated by colonnades from the middle area, but remain open. They are connected with the corner rooms lying on the entrance and altar sides, so that these appear in a certain sense as side aisles. The latter terminate at both sides of the altar space in the pastophon, which open into the presbytery and project into this, on the left (northern) side as the prothesis for the keeping of the sacred vessels and the presentation of the consecrated gifts, opposite (South) as the diaconicon as a sacristy. The presbytery thus widens into an interior in three divisions. To obtain a better separation of the sanctuary from the middle space intended for believers, the choir screens were extended to colonnades with entablatures, from which was finally derived the iconostasis, the closed wall with reliefs, which removed the sacred service from the eyes of the multitude. Through its middle doorway only the priests had admission. Since by the omission of the colonnades in the transverse areas small space remained, galleries became ever more rare, and they were finally limited to the inner side of the narthex. By this arrangement the ground plan in its external outlines received the form of a rectangle or approximate square, adjoined at the

entrance by the wide narthex and on the other side by the apses. Some churches also expressed on the exterior the Greek c cross form by the projection of the transverse arms beyond the external side walls (as for example at the monastery church at Scripu in Boetia, and in a less regular grouping at S. Marco in Venice.).

These typical forms of ground plan of the Byzantine church were fully developed toward the end of the 8 th century. It stands in intimate relations to the arrangement of the domes, not only determinative for the internal impression, but also for the external effect. Among these the great central dome over the middle square occupies the dominating position, to which the side domes are subordinated. These rest chiefly over the square rooms in the four angles of the transverse aisle and the narthex, also frequently over the pastophoreion, less commonly above the transepts themselves (S. Marco in Venice), whereby the Greek cross is expressed in even the arrangement of the domes.

For the structure, the most important problem consisted in the vaulting of the rooms and before all in the construction of the main dome and its substructure. For this new solutions were developed in time, that again reacted on the form of the ground plan. The heavy piers at the angles of the square, retained from the Early Christian period, were soon replaced by four columns, which were sufficient for the most modest dimensions (see the ground plan of the smaller church in Fig. 212). Arches of wide spans support the superstructure of the dome a and connect these columns, and smaller arches extend from these to the external or transverse walls. This system with four columns is already found in the church of the Madonna (S. Theotikos) built about 900 at Constantinople. (Figs. 210, 211).

For a series of monastery churches the larger domical construction in the catholicon of the monastery of S. Lukas in Phocis became typical.(Fig. 212). Here the central area in the ground plan is indeed square, but is transformed into an octagon above by trumpets, i.e., stepped corbellings of the angles, on which rests the dome. The load is received by 12 piers, of which four stand at the angles of the square with two others

at each side beneath the angles of the inscribed octagon. By the arches that extend between the piers themselves and between the piers and the enclosing walls, the thrust of the dome was transferred to the outer walls, so that a technically excellent construction was obtained. It brought a visible advance, since the middle area was undivided by columns or piers,and its entire width extended before the triply divided presbytery. (Compare in Fig. 212 the ground plan of the larger church with that of the smaller). For more modest proportions the dome i itself might even be placed on the walls of the church. From this plan was derived the simpler system with 8 supports, that
170 in manifold variations found general employment, especially in monastery architecture.

While in the ground plan the central idea recedes by the arrangement of the rooms on a longitudinal axis, this becomes t the more strongly emphasized in the structure, since the main dome was carried considerably higher, when it was set on a cylindrical or polygonal substructure, the drum.(From the 9 th century onward). This drum forms the most important innovation in Byzantine architecture. It provides a very peculiarly adapted place for locating windows, that led an extremely favorable light into the principal internal room. The side domes likewise received such a drum with a corresponding subordination to the main dome. The remaining covering of the interior followed in the manner already practised in the Early Christian period, so far as domical vaults were not also employed. The cross arms adjoining the middle domed room were spanned by wide tunnel vaults, and the transepts by tunnel or cross vaults.

The technics of the execution exhibit only unimportant innovations in comparison to the Early Christian mode of construction. In the external masonry appears a great preference for a variegated animation of the surfaces by the alternation of red bricks in courses with chiefly yellow ashlars in continuous horizontal courses and regular bond. Thereby is not only produced a very expressive and picturesque effect, but is also created a quieting and equalizing contrast to the animated lines of the arches and domes.(Fig. 213). The vaults are mostly executed with thin bricks and thick mortar joints. The Byzan-

Byzantine masons prepared their mortar of such excellent quality, that in certain monuments the dome still holds together, even with a partial fall of the substructure.

The architectural treatment is indeed based on the antique treasury of form, but composes the elements taken therefrom in such a free manner, that the classical prototype is scarcely recoginzable. As external architectural members occur almost wholly rare, slightly projecting and bluntly profiled belts a and similar main cornices, together with blind arcades and niches, which at the same time have the problem to afford a reduction of the masses of the walls. About from the 11 th century onward appeared the endeavor to gracefully animate the facades by zigzag bands (especially on the arches of windows and doorways), frets, relief slabs, brick friezes and band patterns, composed of glazed bricks of various colors. The round arches at the doorways and windows were preferably stilted (furnished with vertical imposts). Frequently occur horseshoe as well as pointed and keel arches in their place. In the later period the windows continually became narrower, first in the drum and then also in the enclosing walls, until they finally appear only as high and narrow slits in the wall, enclosed by mouldings. On the drum, they are flanked by round columns, that frequently support the often strongly projecting arched caps over the windows. These are directly intersected by the dome without a cornice at its base (Fig. 214). The arched caps thus form the uppermost crown of the drum, extending around the drum with animated movement. The motive expressed by them was also finally transferred to the facade surfaces, in which occur round and segmental arches as a free termination of the external walls in a new appearance. The spandrels of the domes and vaults at first remain plain as at the church of S. Sophia. Later the spandrels are so decorated by bricks, that the hemispherical form of the dome still appears. In certain cases t the drum is crowned by a pyramidal roof to protect the dome. Then the tunnel vaults receive gable roofs over the cross arms, over the side rooms being low shed roofs sloping from the internal walls.

The decoration of the interior (Fig. 215) does not proceed by architectural relief ornamentation of the walls and surfaces

of the vaults in the antique sense, but by a rich ornamentation with varicolored marble facings, mosaics and paintings. As architectural members are properly found merely columns with weakly profiled archivolts and similar impost mouldings. The capitals of the columns exhibit in the first period the trapezoidal and enlarged upwards Byzantine-Early-Christian form or that of a basket-like block, reduced or rounded off below. L Later flower corollas with classical reminiscances were preferred, on which were placed sharply cut acanthus leaves in pattern-like forms and play of lines, and in very flat relief.(Fig. 216). The shafts of the columns are diminished without entasis, and the bases vary but little from the antique models. On the pavements extend marble mosaics in geometrical patterns in lavish abundance and magnificence. The lower portion of the walls is covered by marble slabs, the upper part and the undersides of the vaults are most splendidly equipped with mosaics of glass rods, that monumental mode of ornamentation, that was
12 already practised by the masters of the Early Christian period, but which was particularly suited to the Byzantine by its heavy magnificence and the rythmic restraint. They brought this branch of art to high perfection and developed in it a peculiar style required by the strong subordination to the rules of the church, whose influence upon western art is perceptible u until our own time. Where the use of the costly ornamental a and figure mosaics was inadvisable for lack of means or for other reasons, fresco paintings appeared instead in quite the same mode of conception and execution.

In the ornament is expressed still the imitation of the textile character of ancient oriental art. Its basal elements are geometrical forms and conventionalized scroll-work, that in the first period permit recognition of many similarities to early Grecian ornamentation, but assumes a severe and pattern-like form in the lifeless and rigid treatment of acanthus leaves. In the scrolls and figures are interwoven many Christian symbols, besides generally the Greek cross.

13 Since the exhibition of statues was forbidden by the church, sculpture found zealous culture only in the domain of the minor arts, in ivory carving, attaining great fame therein. On the few architectural monuments, that also exhibit relief slabs,

these scarcely appear except as enlarged transfers of ivory r reliefs to stone.

The most important monuments are:- in Constantinople; S. Theotokos (church of the Madonna), built about 900 (Figs. 210, 211), a regular plan with 4 columns and a doubled narthex widely projecting, a main and four side domes (the latter over the narthex), the exterior in a very expressive treatment: the pantepoptes church with but one dome, and the similarly planned Pantocrator, both of the 11 th century, the latter as the burial place of the Comnenes dynasty (1057-1204), enlarged by several additions; the church of the Saviour, particularly important, since its complete decoration in ornamental and figure relief, marble facings, mosaics and paintings, has been preserved until our time, while all other churches have lost their ornamentation through the enmity of the Turks toward figures.

In Trapezunt:- the church of S. Sophia, ground plan with 4 columns and portico, internal narthex and two side wings as a additions to the arms of the cross.

In Thessalonica:- (Salonica); the church of S. Bardius with entirely regular ground plan according to the scheme with 4 c columns, and the church of the Apostles, completed in the 11 th century, where the inner narthex also extends along the sides about the interior with 4 columns; the drums are proportionately high and are richly subdivided. The church of S. Elias (Fig. 217) was built in the year 1012 and so far differs from the rule, that its side transepts also terminate with a semicircular apse.

In Athens are several churches, among them the Panagia Gorgiko (old cathedral) affords particular interest by the rich relief ornament on the facades, and the splendid S. Eleutherios recalling strikingly even on the exterior the internal subdivision and the Byzantine style, from the beginning of the 9 th century. (Fig. 218).

Great importance for the ecclesiastical life of the East was secured by the monastery plans, and among them especially the monasteries built since the 9 th century on Mt. Athos on the northern coast of the Aegean Sea. In them were gradually developed fixed rules for the plans of monastery buildings, the arts were zealously cultivated, and indeed not merely during

the actual flourishing of Byzantine architecture, but likewise in the period of decay and even under the Turkish rule. Until the present day are they preserved as a monastic republic with 20 fortified walled monasteries and as a chief location of Byzantine art methods. Of the numerous monastic churches, that at Scripur in Boetia (built 873-874) with low dome and tunnel vaults over aisles and narthex, as well as the catholicon of S. Lukas in Phocis have already been mentioned. With the latter agrees in the ground plan the monastery church of Daphni (11 th century) and S. Theodore in Misitra (1296; southern Greece). The system with 8 supports is represented by the catholicon of the monastery of Nea Moni on Chios, and by the church at Crina influenced by it, interesting for its animated arched and blind arcade architecture with brick ornamentation.

Likewise outside the Byzantine empire, some purely Byzantine monuments originated in the provinces of Italy, either dependent on or influenced by animated commercial relations, in Palermo being the little church of S. Maria dell' Ammiraglio, called Martorana (founded 1147), in which the round arches are replaced by pointed ones (see Vol. 2), at Stilo in southern Italy being La Cattolica, and in Venice the famous church S. Marco, the greatest creation of Byzantine architecture in the middle ages. On the site and utilizing certain parts of an earlier basilica, burned in 976, built in the 11 th century and d dedicated in 1094, it bears all the marks of a consistently executed Byzantine central structure; ground plan of the Greek cross with side aisles cut off by arcades, domes over the middle area, the arms of the cross and the single narthex, that is also extended along the sides to the transverse aisle and covered by small domes.(Fig. 219). The internal decoration ((Fig. 215) refuses the effect of architectural members in relief and places chief value on the covering of the lower parts with precious and brightly colored marble slabs, on the rich contrast of variegated columns with gilded capitals, and the ornamentation of the upper portions with splendidly colored mosaics shining with gold in an oriental and even fabulous richness. The unity of style is not retained, since even in the 17 th century work was carried on for the external and internal

construction. The grand portals treated in Lombard-Romanesque style with columns and arches (Fig. 220) belong to a rebuilding dedicated in 1094; the free round arched terminations over the deep recessed niches of the vestibule were also still decorated in the 14 th century by Gothic recessed arches and crockets.

An interesting architectural group op western Roman-EarlyC Christian and Byzantine art is composed of the cathedral and S. Fosca on Torcello near Venice.(Fig. 221). The cathedral dates back to the year 650 in its ground plan. But to the ancient structure belongs only the principal apse, in which the seats rise as in an amphitheatre (with reference to the annular passage beneath them to the confessio, see page 179, which could not be placed lower). The rebuilding followed in 864. S. Fosca is a Byzantine central plan deserving consideration by its beautiful treatment of the Byzantine central plan, of which the originally projected dome was never executed. The octagonal central area is still covered horizontally. The exterior permits a clear recognition of the Byzantine architectural scheme.(Fig. 222).

In the Danubian provinces the two transverse arms of the cross are chiefly extended by apses. (Churches at Semandria, Ravonica and Krusevac in Servia). The church at Kurtea d'Argysch in Wallachia was already under the predominating influence of Russian art.

Numerous smaller monuments are found in the Asian provinces of the eastern Roman empire, especially in Asia Minor, in s some parts of Syria and in Palestine. The Byzantine architectural style has remained until the present time determinative for the religious buildings of all nations, that belong to the Greek church.

Of Byzantine secular architecture only a relatively small remainder of noteworthy monuments have remained until out time. Even in the capital, once so rich in magnificent secular structures, are only a few unimportant remains to be found now, among these being the three story hall building of the Tekfur Serai, dating from the first half of the 9 th century, a ruin, whose enclosing walls are yet standing with the front facade, undivided but animated by round arched doorways and windows,

and further the so-called "Chambers of Anemas", a vaulted structure 196.9 ft. long and utilized as a prison for the great men of the empire, also a great number of towers belonging to the mediaeval fortifications of the city.

In this place we shall also mention the problematical mashita (meschatta, maschitta) structure, even if its place in a d definite period appears uncertain in time as well as in style. (The facade is now in great part exhibited in the Berlin Museum). It lies on the great caravan route from Damascus to Mecca, about 31.1 miles east of the northern end of the Red Sea; it was probably erected as a caravanserai (see page 20/) or as a desert castle and remains unfinished. A square area 508.5 ft. on each side is enclosed by high walls, which are strengthened and defended by 23 semicircular towers, only containing an entrance at the middle of the southern side, flanked by two polygonal towers. In the interior a number of rooms lie directly behind the portal and opposite the northern wall in symmetrical grouping about the middle axis, and whose purpose is doubtful. High interest is afforded by the splendid ornamentation, sculptured in very low and graceful relief at both sides of t the entrance on the towers and the surface of the walls for a length of 150.9 ft. and to a height of 18.0 ft. (I.e. of the entirely constructed wall). It chiefly consists of compact v vine scrolls, that chiefly grow out of vases and with interwoven animal figures fill the triangular panels, arranged in a continuous series.(Fig. 223). The drawing and execution are very peculiar, but is nearest the Grecian-Oriental ornamentation, permeated by Neopersian motives, such as were employed as a late offshoot of antique art in Syria and Palestine, particularly from the 4 th to the 6 th century and later, even until in the time of the crusades. It influenced strongly not only the Byzantine-Early-Mediaeval art of ornamentation in Constantinople, but also that of the East; where its influence is still evident in a series of monuments in the 12 th century. To the same series of forms among others belong the ruins of the so-called Kasr il Abjad, or white castle in the Ruhbe, still lying about 62.1 miles north of Mschatta.

Offshoots of Byzantine art in Asia Minor, the Caucasus and in Russia.

The churches in the west Asian provinces on the Black and C Caspian Seas, in Armenia and Georgia exhibit in plan, construction and the treatment of details in many ways an independence from Byzantine style of architecture, and partially even react upon it. They have modest dimensions, are arranged in cross form, which may also be recognized on the exterior, while the central room above the arms of the cross is carried higher. But the Armenian cross differs both from the Greek and the Latin corss in that, the western and eastern arms are equal to each other, but are longer than the transverse arms . (thus the cross bar of the Latin cross is moved to the middle of the longitudinal bar). Over the central square rises the drum with the dome. This is always covered by a high conical roof. The abses generally do not project externally, but the rear wall is straight as in the Syrian churches. Only sharp triangular recesses on the exterior indicated the places, at which the internal choir rooms are separated. To the Syrian examples also corresponds the predominating covering of the . interior by tunnel vaults. In the internal equipment is preserved great simplicity. The narthex is omitted as a rule. T The portals are made small and low. From the contact with Persian and Arabian art is derived the use of round, pointed and horseshoe arches. The external walls rise above a plinth in three steps, are subdivided by blind arcades on slender and frequently coupled half columns, and are almost always constructed of ashlars. The general appearance of many churches often strikingly resembles that of the Romanesque buildings of the West, both on the exterior and in the interior.

Monuments:- the ruins of the cathedrals of Ani and Coutais with great blind arcades on the surfaces of the external walls. The church in Pitzounda, arranged according to the normal Byzantine ground plan and indeed with narthex and gallery. The stately monastery church of Etchmiasdin, whose all four arms of the cross are extended by apses projecting externally, and the church of S. Rhibsime at Wagarschabad with a very rich development of the cross-shaped ground plan by extending each a

arm of the cross by a semicircular niche and the placing of s square rooms in the angles, so that externally is produced a closed rectangle, the internal apses only being indicated by triangular recesses.

In Russia at about the end of the 10 th century, the Greek Catholic church found entrance from Byzantium and with it the Byzantine church architecture. Until then Russian architecture, always under foreign influences, had adopted in the South western Asian and Hellenistic-Roman traditions, but in Great Russia the northern wooden construction through the Scandinavians. * During the approximately 250 years of the Mongol rule (1238-1480) were determinative the art ideas of inner Asia and its world of form, which subsequently gave to Russian architecture its peculiar character.

* *The Warags, a Swedish race derived from the Normans (see Vol. 2, page 1), in the 8 th century invaded the coast provinces of the Baltic Sea, founded the Russian empire in 8.2, but gradually fused with the Slavic people and adopted their language and customs.*

The Byzantine scheme of plan was the basis of the churches, but is frequently so changed by the separation of subordinate rooms and by additions, that the unified effect of the interior is lost. The presbytery is entirely separated by a solid iconostasis from the remaining interior of the church; this mostly appears depressed and badly lighted. In the ornamentation by mosaics and wall paintings, men firmly adhered to Byzantine traditions. Still in them was not seen the artistic centre of the church building, but in the showiest possible external treatment. Instead of the earnest monumental appearance of the Byzantine House of God occurs a loose and luxuriant architectural surface, for which men indeed adopted the motive of the dome and utilized it in a lavish way.

From the low and massive body of the building rise a multitude of partly stunted and partly slender towers, that all have domes in the most varied and wonderful forms. The form most generally preferred is that of a bulb, that is swelled out in the form of a balloon, so that the drum beneath it only appears as a thinner necking. These bulbous domes even crown the spires shaped as steep pyramids.(Fig. 226). For the other

covering is in use the hip roof derived from wooden construction. The transition from the square or polygonal substructure to the dome extending through the roof is frequently made by small dwarf gables, arranged in rows behind and above each other.(Fig. 224). They correspond in a certain way to the internal construction under them, in which a system of stalactite arches placed above each other effects the transition from the square to the polygonal or circular form of the drum. The extremely effective and alternating rich covering of the roofs and domes with brightly colored faience and partly or entirely gilded metals gleams afar in the most brilliant colors.

For the subdivisions of the walls, the portals and decorations the Armenian models continue in use in the first period. The architectural details later experienced a thorough transformation. Swollen cornices, swelling members, bulging capitals, luxuriantly fanciful decoration with heaping up members and overloading the forms permit the recognition of Chinese, Indian, and especially Persian influences.(Fig. 225). Architects, attracted or called from the West to Russia, particularly from Germany or Italy, also enriched the treasury of form existing there by details from their native art. Still they composed in accordance with the orders of their employer entirely in the style of the Russian creations. Wide and many-membered cornices, coffel-like wall panels and friezes, the ogee arch as the prevailing form of arch for window and gable caps, (see Fig. 226), the hip roof and the bulbous dome form its most important characteristics.

Likewise secular architecture received by them its specific stamp.(Fig. 22). On the wooden peasants' houses in middle a and northern Russia, one meets with very charming sawed, perforated and carved enclosures of doors and windows, barge boards and the like, which in details frequently echo the form elements of the Romanesque West.

The Russian ornament lacks unity in character. Everywhere local and contemporary diversities may be detected, which were compelled by the crossing of native ornaments with foreign decorative tendencies. The basis is composed of geometrical interwoven work in connection with interlaced bands and animal o

ornamentation (see page 10, 171), which as a common possession of the Germans, Scythians and Slavs dominated prechristian art in all middle Europe and the East from the provinces of the Caucasus to Siberia. To this are added chiefly Persian and Hellenistic-Roman motives, transmitted in the Byzantine spirit, whose play of lines may often be very clearly recognized in t the continuous bands and friezes. Certain Renaissance and Barocco motives, that penetrated in the 17 th and 18 th centuries, further became a paramount part of the Russian ornament of the later time.

Monuments:- until the beginning of the 13 th century the Byzantine or Armenian influence is predominant, thus on the two cathedrals of S. Sophia at Kief (1037) and Nowgorod (1052). On the church of S. Maria Helper of the monastery of Bogolinbow near Wladimir built in 11[illegible], an acceptance of the contemporary architectural forms of the West makes itself perceptible in the detail forms, so that the exterior seems entirely Romanesque. Likewise at the monastery church at Sfusdal, erected in 1176, as well as the famous cathedral of S. Demetrius at Wladimir (1195), this is true of the details. Yet in these two churches the native architectural style already appears in a more striking way. The transition to the proper Russian style characterizes the church of S. George at Jurjew - Polski (1234), at which chiefly Persian models influenced the ogee a arches, the bulbous dome and the relief work of plant scrolls. About the end of the 15 th century two Italian masters constructed important churches in Moscow; Aristotle Fioravanti from Bologna the church of the Ascension (coronation) of Maria in the Kremlin from 1475 to 1479 (Fig. 227), with five domes, slit windows, round arched gables, dwarf galleries, etc., and A Alexisio Novi (1489-1508) the church of the Annunciation begun by his countryman P. Antonio Solari (+1493), crowned by eleven domes (see Fig. 227 at the rear on the left). Foreign influences are expressed in these works only in the details of the o ornamentation.

The 16 th century brought the best period. Cities flourished and acquired particularly by their kremlins, the unwalled sacred hill, on which were crowded churches and palaces, their national Russian architectural appearance. In the year 1554

under Ivan IV (the Terrible) was begun the most expressive work of Russian art, the church of S. Basilius in Moscow. To the architect, a Russian, fell the problem of grouping in two stories eight sanctuaries around a central larger room. He made the separate chapels polygonal, connected them by passages and adorned them richly by paintings. On the exterior (Fig-228) his artistic taste, based on Asian-Barocco showiness, created an architectural form of the most luxuriant caprice. The church of S. Basilius thereby became the representative wonder work of the Russian art.

To the 17 th century belong the two churches of the Madonna at Moscow and at Markova near Moscow. They are designed in somewhat more quiet and clear proportions, but lose in their external appearance by the too frequent repetition of the dwarf gable forms.

In the 17 th and 18 th centuries western civilization and w western art were transplanted to Russian soil under the monarchs of the House of Romanoff. The religious and secular buildings of the new capital of S. Peterburg, founded by Peter the
223 Great (1689-1725) were erected by French and German architects in the contemporary architectural forms of the West, and other cities followed this example. First in the modern period was again expressed a return to the national art style, particularly to the picturesque wooden construction of the early Slavic middle ages.

XII. The Architecture of Islam.

1. General and historical Basis.

Entirely without mediation and preparation, almost like a s suddenly appearing elementary event broke in the political transformations introduced with the announcement of the religion of Mohammed. With fanatical inspiration the principles of the new faith were adopted by the Arabs, and their commands were consequently strongly enforced by the sword. But 35 years after the first appearance of the prophet (622), his followers had entirely conquered Arabia, Syria, Palestine, Persia, Egypt and Cyrenaica, and soon afterwards the remaining part of the northern African countries fell into their power, and finally also Spain (711) and Sicily (827). In the 12 th century Islam pressed farther eastward and brought all India under its rule. At the middle of the 15 th centurn, it also extended into southeast Europe, conquered Constantinople (1453) and permanently took possession of the Balkan peninsula. It thereby included a domain larger than the former world empire of the Roman Caesars, and ruled over masses of peoples, that were very irregularly endowed, but were only held together by the common bond of the Mohammedan religion.

Consequently the architecture of Islam presents under the different climates also very diverse forms. When the Arabs passed the frontiers of their native land and subjugated in rapid and victorious campaigns the oldest and richest civilized countries of the world, the splendid Neopersian kingdom of the Sassanides, Byzantine Syria and the Roman provinces of northern Africa, they were themselves still chiefly nomads, dwellers in tents, to whom a native architecture was wanting. Therefore they adopted the forms found in the different countries and gradually filled them with their own life. Only after two centuries was attained the originality characterizing Islam. This however has not received its purpose in a sense from the religion, like the case of the Christian art. For the Mohammedans knew no altar service; afterwards as before the Caaba in Mecca formed the true sanctuary. Toward this were directed their faces, when they said their prayers, according to t the command of the prophet. The House of God should indeed a

afford a place for common prayers, and for these was required only a covered hall, in which was particularly indicated the direction toward Mecca. No binding precepts existed for the construction and arrangement. Consequently the faith led to no new creations in regard to the treatment of the interior and of the forms. Likewise in its other architectural works has Islam produced no independent architectural types. What appears new and peculiar in its art, substantially consists in the free conception and transformation of the forms occurring, in the technical treatment of certain standard materials, and especially in the wonderful decorative system, that the specific purpose of Mohammedan architecture determines, lending to it unexcelled beauty in many respects.

II. Evolution of the architecture of Islam and the monuments.

Among the architectural works the houses of prayer, mosques, occupy the first rank. In the first period men were satisfied by the direct change of churches and synagogues into halls of prayer. In new buildings two chief forms were gradually developed for the ground plan. The first (Fig. 229) is a rectangular court (sahn-el-gamia), at the centre of which stands the fountain of purification for the ritual ablutions, surrounded by open porticos, one of these, generally that toward Mecca, being arranged with much greater depth as the proper hall of prayer (liwan). In it the direction toward Mecca (kibla) is indicated by a niche (mihrab) recessed in the outer wall.This prayer niche takes the place of the sanctuary; it is ornamentally treated with especial richness.(Fig. 230). Beside it stands the pulpit (mimbar), set according to the depth, a latticed platform, from which are read the words of the Koran and repeated to believers standing further behind. During divine service the koran, the sacred scripture of the Mohammedans, 1 lies open on a low desk (kursi). For the caliph or his representative is also constructed a latticed box (maksura). The e entire liwan makes the impression of a hall of columns, uniformly subdivided by a great number of rows of columns of equal diameter and height, with connecting arches and arcade walls, on which rests the horizontal ceiling.

The second principal form of the mosque adopts the plan of the Byzantine central building, either in the simple form as a polygonal domed room with outer aisle as at the so-called Dome of the Rock (Sachra mosque) at Jerusalem, or in the compound system of S. Sophia. The latter is the classical model for most of the Osman buildings at Constantinople and in the remainder of Turkey, either with a direct transfer of its structural system, or with a change so that four half domes lean against the central main dome. To the completion of the plan of the mosque also belong the minarets, slender and tall towers, from whose balconies the muezzin announces the hours of prayer. (Fig. 231). They mostly stand beside the gateways, but are w without organic connection with the structure.

The mosques with high schools (medresses), where four large vaulted prayer rooms with open inner ends lie around a court in the form of a cross, its arms serving both as liwans as well as class rooms for the four rites of the Mohammedan faith. Around this building as a nucleus are grouped numerous apartments as living and administrative rooms.(Fig. 232).

At the tomb mosques the hall of prayer is reduced somewhat in magnitude with a form of plan otherwise similar. The simple mausoleums chiefly contain only one small internal room of square area. They are crowned by a massive dome.(Fig. 246).

Of the other structures connected with Mohammedan civilization, the sebil denotes a fountain house above a richly treated rectangular room with water basins for supplying water to passers; the Tekiye is a design corresponding to our monasteries, the moristan being a hospice and hospital. The last two are extensive groups of buildings in cellular arrangement about one or several courts in connection with a small mosque.

Likewise the Khans or caravanserais erected in great numbers on the caravan routes as public shelters exhibit the uncowered court plan with a generally regular (square or polygonal) enclosing structure, that contains on the inner court side the l lodging and cooking rooms with the stables, but is entirely closed on the exterior with the exception of the monumentally treated portal.

At great expense were built the palaces of Mohammedan monar-

monarchs, both as residences and seats of government, as well as external tokens of political power. They lie within an extremely well protected and fortress-like enclosed area, in which the structures for court purposes, the women, dwellings of officials, for the military etc. are always freely grouped with a mosque in the midst of carefully tended gardens, parks f for animals, grottos and the like. The chief buildings, the alcazar, generally has a symmetrical plan in the form of a rectangle, that contains at the front a narrow vestibule extendiing the entire length of the building, behind this being a great middle room occupying two stories and enlarged on all four sides by rectangular niches (Fig. 233), supplied with clear spring water and richly equipped with fountains and water basins. Right and left of this grotto hall lie the subordinate rooms, but in the third story the principal apartments have a similar ground plan. The reception and audience halls were a almost always found outside the proper alcazar and in the midst of the park.(Fig. 234).

The citizens' dwellings permit the recognition of the basal traits of the Roman house by the arrangement of the rooms around uncovered courts, furnished with water basins and spring fountains, in which a complete separation between the men's and women's living rooms is carried out. It is the case in a still greater degree, than in the Roman house, that the Mohammedan is enclosed externally and against seeing by angles in the house corridor, omission of windows toward the streets, or in case these are indispensable, by most carefully protecting them by close lattices.

For building materials there come into consideration for the erection of these architectural works in great part the materrials already in common use in the different countries, natural stones and bricks, especially granite, limestone, sandstone, airdried and burned bricks. Where good building woods existed in sufficient abundance, as in Spain, Turkey, in Asia Minor a and India, these were added. Gypsum plays an important part in the architecture of Islam, both for ornamental sculptures as alabaster, as well as for casting arches or for stucco and plastering, with ceramic products in colored glazed bricks, clay slabs and tiles. But the latter were already known to t

the ancient Egyptians, Assyrians and Persians, yet were brought by Islam to higher perfection, both as relief slabs, on which the ornaments were incised with a free hand or overlaid in thin strips and then enameled, i.e. covered with a glaze, as well as (after the middle of the 14 th century) smooth plates, painted and having a metallic lustre, the so-called faience. Its use was so general in some countries, particularly in Persia, that not only on the mosques, but also on the better private houses, the internal floors and walls and even the external s surfaces of the facades and domes were entirely covered with them. Besides there are also found (chiefly in India and Egypt) marble wall slabs and those of other noble stones, as well as marble mosaics on floors and on the walls, further with wooden panelings with inlaid work in costly woods, ivory and metals for internal walls and ceilings.

Building procedures exhibit in general an adoption of the methods of treatment practised before the invasion by Islam. Yet the solidity of Syrian and Roman works was not reached in the jointing of ashlars and the construction of walls and vaults. The entirely untrained sons of the desert had no time in their temporary campaigns of conquest to devote themselves to such problems. Not rarely was the execution as hasty, as if the buildings were only intended for the present. For masonry was never developed a special bonding, peculiar to the Arab style of architecture. Generally stretchers and headers alternate in the same course, when the stones are laid alternately parallel and perpendicular to the face of the wall. Otherwise the emplecton of the Romans (see page 105) is the most common construction of the wall . By the insertion and anchoring with wooden timbers, men sought to increase the resistance. In Spain half timber construction with a covering of stucco is t the prevailing mode of construction. The walls above arcades were there chiefly constructed not of masonry, but framed with timbers and laths, on which slabs of stucco, cut out in arched form, were fastened as a covering. The ceilings consist of whole or split trunks,usually of palm trees, if they are horizontal and are built of wood, with a partial or entire sheathing of the undersides and panels, over this being a layer of boards and thin stones for the covering of the upper floor.

In the Hauran is retained (see page 161) the previously described construction of horizontal ceilings of stone slabs. Among vaulted ceilings the domical form stands in the foreground. Yet there occur nearly all forms of vaults employed by the Persians, Byzantines and Romans. They are executed in bricks, c cut stone, quarried stone, cast in gypsum and even in wood in certain cases,(Dome of the Rock at Jerusalem), the domes frequently with double vaults, higher outside and lower inside, w with wooden stiffening bars in the space between them. The vaulting lines change with the country. For buildings in north Africa and Turkey the Byzantine hemispherical dome is characteristic, in Egypt and Syria the stilted and pointed dome, and in Persia and India the bulbous or pear form, derived from the ogee arch.(Figs. 2365 246, 252).

With the forms of the vaults are reckoned further the mokannas or stalactites ("drip stone forms"), exclusively belonging to Mohammedan art. These are explained as being originally a peculiar development of corbelling in pendentives, so that the different stones were set above each other in form of triangular prisms, and hollowed out below or rounded off in spherical pendants.(Fig. 235). They are not only found in vaults, but also as a transition form under nearly all projecting architectural members, in the small niches, under the cornices, on capitals as a transition from the round column to the square abacus, and finally in entire designs of ceilings as cellular vaults, that recall stalactite formations. On the facades they are usually in cut stone or terra cotta, but in the interior are constructed in gypsum and suspended in wooden construction. These stalactites first occurred in Egypt before the first half of the 12 th century, but finally in a purely ornamental form became a chief portion of the Mohammedan treasure of form. (See Figs. 230, 231, 233, 239, 250).

In a still higher degree than in the construction, the architectural forms omit the static feeling for the structural problems of the different architectural members and their relation to each other. To the unstable and unrestricted imagination, always directed to the fabulous, corresponded the gay and pictqueresque representation of a strange treatment, far more

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than the rythmical proportions of the Grecian-Roman temples a and palaces. Therefore they followed the models transferred therefrom with ever greater freedom and placed them finally u under a peculiar law dictated by themselves. The centre of g gravity of the artistic development is placed entirely in the internal architecture, while the exterior, at least in the provinces around the Mediterranean Sea, is left strikingly simple and without ornamentation.

The facades (Fig. MC-U but seldom receive an architectural subdivision. The plinth elsewhere usual is wanting, likewise a subdivision of the facade in stories by horizontal belts etc. Only smooth and band-like projections are arranged and break the faces of the walls. But the wall surfaces themselves are adorned by artistic ashlar courses, network bands of brickwork, flat ornamented bands and also (in Sicily) partly decorated by blind arcades, and animated by doorways, windows, niches and bay windows in rich alternation. The portals were always large and monumental with the characteristic arched top, and richly treated with niches and stalactites. The ornament rises h here to choice magnificence (see Figs. 236, 237, 250). The n niches show a similar treatment at a correspondingly reduced scale. At the windows the arches received an extremely varied play of lines. Already on the early buildings one meets with combinations into double windows, frequently with round openings in the tympanum, and likewise the so picturesque and effective rows of windows with dwarf columns. The upper termination of the surfaces of the facades is formed of a but slightly projecting main cornice, often with a row of battlements extending above it, but whose forms recall less the steps of gables than upright standing leaves or sawed out and carved woodwork. The roofs in Syria and Egypt are mostly flat, consisting of stone beams or palm trunks with a layer of mortar, but in Spain and also in part in Sicily according to antique methods, formed of rafter construction with flat and hollow tile covering. Elsewhere prevailed the domed roof, especially in Persia and India. The external surfaces of the domes remained either plain and without color, or they were richly decorated by incised or carved clay tiles and by enameled mouldings and

network. Copper terminals with spheres, rings and half moons placed above each other form the crowning ornament.

The internal architecture is characterized as a purely ornamental architecture of columns and arches in combination with stalactites, and an extremely rich and splendid ornamentation of the walls. The columns were at first taken from antique or Byzantine structures, and these were also superficially imitated and set confusedly in a varied way. Only after considerable time appeared peculiar forms of columns, which seem to be influenced by the national recollections of the nomadic tent. The base is usually wanting; but if it is developed, then it appears rather as a bell-shaped swelling or cavetto-like enlargement of the shaft.(Fig. 238). This is always thin and slender, without diminution or entasis, with some rings around the base and several encircling neck bands. The capital either consists of an astragal, long necking with leaves, a richly ornamented block, rounded off below, and an abacus, or it shows the expressed Mohammedan angle transitions by means of stalactites. (Figs. 238, 239). The abacus projects strongly, or there lies on it (as in certain monuments of Byzantine art), a trapezoidal impost block, enlarged upwards to receive the frequently incurved arch. (Fig. 241).

In the arch forms is expressed the joy in animated and rich play of lines, in strange and fanciful treatment. The simple semicircular arches, which play so great a part in Roman art, are almost entirely omitted; at least they appear stilted, i.e. raised on vertical imposts. Most commonly appear the pointed arches, the horseshoe and ogee arches, and indeed -- corresponding to the similar vaulting lines of the domes -- the pointed arch chiefly in Egypt, the horseshoe arch in north Africa and Spain, the ogee arch in Persia and India. To these are a added the forms composed of circular arcs, the trefoil and foiled arches.(Fig. 240). The archivolts are especially emphasized, less by moulded enclosing members, than by treatment in different colors and decoration of the voussoirs, or by a continuous broad band of ornament (inscription). Yet these arches do not usually appear as if supporting structural members, but they are turned between vertical wall bands, that rise fr-

213 from the abacus of the capitals and are continued above as horizontal bands beneath the termination of the wall. (See Fig. 249). The arches were frequently set in two series over each other, the lower one then open and without a wall built over it. (Fig. 241). The arches frequently intersect and interlace, whereby a wonderfully luxuriant arcade construction is produced. Thus the severe architectural motive of arched construction is directly converted into an ornamentally conceived element of decoration.

On the arcade walls rest the ceilings, treated either with visible beams and wood carving, frequently coffered or entirely flat with netted ornamentation, or especially for the smaller and particularly lavishly equipped rooms with the stalactite vaults. The floors were animated by mosaics of marble or clay tiles.

214 The principal emphasis of the internal decoration always consists in the ornamentation of the wall surfaces. By the before mentioned vertical bands, the wide head band, the arches, the inmpost frieze, by dividing and enclosing ornamental borders and bands of inscriptions, these surfaces receive a kind of subdivision by enclosing and frieze bands. On all flat surfaces is then developed a peculiar and wonderful ornamentation, such as can only be attained by technics carried to the highest point, particularly in ceramics and the trowelling of stucco. Since the patterns were chiefly incised in clay and stucco - not moulded - , they won the direct effect of artistic hand work.

The ornaments (Fig. 242) are partly executed as distinct panels, partly as continuous band patterns, or are entirely unlimited (in unending ratio; see page 115). Their main forms consist of geometrical figures of straight and curved lines in t the most complicated combinations, from the lines of the Cufic (ancient Arab) writing and the so-called arabesques,* i.e. that purely linear foliage and scroll interlacings, that no longer recall nature prototypes.(Fig. 243). The acanthus leaf w was transformed into an unnatural double and triple leaf, arranged in continuous wavy scrolls or extended in uniform geometrical arrangement over entire surfaces. The lines interpene-

interpenetrate and interlace, and in the panels formed by them is again added smaller and more graceful ornament, this like-wise in patterns. All forms are strongly conventionalized, a and round forms are represented as entirely flat. An animated coloring, in which the drawing and the ground are treated with equal values, gives to these ornaments their clear and harmonious tone and the peculiar oriental character. (Fig. 244). In certain provinces, chiefly in Persia, the motives are freer a and are more naturally treated. Here also natural plants and figures are interwoven between golden arabesques and inscriptions. In their use the ornaments are graduated in relation to drawing and color with the most refined feeling, in order to produce the utmost effect possible, far and near. Derived from the recollections of the tents of nomads, these wall decorations produce the effect of stretched magnificently colored tapistries, with the treatment in flat relief like the perforated work or artistic lace hangings. In extravagant abundance are they extended over the entire internal architecturel conceal the indeterminate architectural subdivision, and colthe it in a wonderful play of form and color, that captivates the senses, and permits the structural ideas on the basal relation of support and burden to be entirely forgotten.

* *The ornament thus designated was employed with especial favor by the Moors, and so was named Moorish from them. The Italian Renaissance took it up again and employed it chiefly for intarsias. (See Volume 2).*

In the ornamentation Mohammedan art attained its highest perfection; it designates likewise the tenor of all Mohammedan p painting. By the aversion of the Arabs to represent living beings, painting could attain to no further development. For t the same reason figure relief is almost entirely wanting. If exceptions occur, as for example in certain ornaments of the civic art of Egypt, or in the hall of justice and court of lions of the Alhambra, these are always to be referred to occasional foreign influences.

The most important monuments. -- In Arabia, Syria and Palestine, the countries first conquered by Islam, the earliest religious buildings exhibit partly very simple plans as prototy-

prototypes of the later architecture of the mosques, partly a complete dependence on the existing models. The mosque at Mecca consists properly only of the sacred precinct surrounded by porticos with the Caaba in the middle, a small structure covered with black cloth, in the east side of which is built the b black stone venerated by the Arabs; beside it is found a canopied pulpit, and in the vicinity is the sacred well. The Sachra mosque, begun in 691 A. Da, called Dome of the Rock at Jerusalem, is a Byzantine central building with a high domed octagonal domed interior 98.4 ft. diameter and two lower outer aisles, erected on the site of Solomon's temple. (Fig. 245). The famous mosque at Damascus (begun by caliph Walid in 705) rose on the site and utilized considerable portions of a Christian church. The model ground plan of a court surrounded by porticos and with liwan was at last attained by the great mosque at Medina, likewise built by caliph Walid in the beginning of the 8 th century.

In Egypt the architectuaal works bear an expressed monumental tendency, that lends to them a surprising grandeur through the combination with the oriental love of magnificence. The mosques of Cairo belong to the most beautiful buildings of the world by their clear arrangement and subdivision of the massis and the splendid equipment. The mosque of Amrou was built in the year 643 by the use of antique structural materials as a court surrounded by porticos, but without dome and minaret. The same arrangement of ground plan, but with a minaret, is shown by the mosque of Ibn-Touloun (of the year 885), especially remarkable for the massive piers with columns in their angles for supporting the arches (Fig. 240 I) and the developed Arab architecture with the pointed arch. The minaret has an external stairway winding around it. But the most important and grandest plan is that of the mosque of Hassan, built in 135‿-1359, at the same time a medresse (Fig. 252), with four liwans of great dimensions, in cross form about the uncovered court, measuring 105.0 × 117.1 ft., with a great domed tomb built at the eastern side and numerous rooms for the high school. Likewise the medresse of the Mameluke sultan Barkook, e erected in the year 1386, is at the same time a mosque anf tomb

with a similarly arranged plan. Of the later mosques, that of Sheik el Mouaiyah from the year 1416 again has the court plan with porticos, these having horseshoe arches with rich and splendid treatment. (Fig. 230). Among the tomb mosques the most important one is the mausoleum of Sultan Barkook (1382-1399), a regular and spacious court plan with surrounding monastery, living and housekeeping rooms, purther the beautiful tomb mosque of Kaitbey (14_6) with cross-shaped ground plan, at whose northeast angle and projecting into the street, (Fig. 236), lies the sepulchral chamber, covered by a stately dome. For the simpler mausoleums the numerous tombs of the caliphs at the east of Cairo present a necropolis of unique architectural magnificence. (Fig. 246).

In Sicily none of the larger monuments have remained to us from the flourishing period of Saracenic rule of more than 200 years (82.-1060), besides the little palace of Menani near Palermo, probably falling in this period, and whose central room is represented in Fig. 233. But their art was taken into service by the Normans succeeding them, whose stanch buildings endured the storms of the time, and present us in their remains with extremely valuable documents for Mohammedan-Sicilian art, particularly for the plans of the palaces. In the Ziza, built about 1166, one of the Norman pleasure palaces near Palermo, we have the previously described (page 207) typical ground plan of the palace, as it was described by contemporary and later Writers. The entire equipment, particularly the use of the pointed arch throughout, indicates a dependence upon Egybtian=Arab art.

In north Africa on the soil of ancient Mauretania, Islam found a particularly favorable reception by the Moors settled t there. Tunis and Algiers became paramount homes of Mohammadan civilization and art. The buildings (Figs. 247, 248) here bear in their general appearance the great tone of Egyptian art, but in detail that luxuriant wealth of graceful ornamental work, that amazes us on their architectural monuments erected in Spain on this side of the Mediterranean Sea.

In Spain was founded by the Moors in the year 711 a mighty kingdom, which remained in their possession for approximately

eight centuries (until 1492), and which by commercial relations with the Christian West attained to an elevated and flourishing civilization, evidence of which is given by the still magnificent and well preserved architectural monuments. The earliest work is the mosque of Cordova (Cordoba), founded in the year 786 as a rectangular court plan with the liwan at the southern side (toward Mecca). This was originally erected as a portico with eleven aisles, but was extended in depth in the 9 th century, and in width in the 10 th. The insufficient height of the Roman and Byzantine columns employed led to the doubling of columns and arches. The vast forest of columns shrouded in mystical semi-darkness, with the luxuriant arcade construction with horseshoe and foiled arches, which are partly interwoven (Fig. 241), produces an extremely solemn and fanciful impression.

Of the Alcazar at Seville, aside from the portions of the b building erected by Moorish architects in the Christian period, (in the 14 th century), but few Moorish remains exist, and of the great mosque, there scarcely remains more than the minaret, the bell tower known to the world under the name of "Giralda". The most mature and magnificent monument of the Moorish style and in many respects also the chief work of the purely Mohammedan art is the Alhambra on the hills of Granada. It was originally (in the 9 th century) planned as a fortress, rebuilt in the 14 th century as a royal palace, but in the interior was only completed in the 15 th century, shortly before the collapse of the Moorish monarchy. The very irregularly arranged plan of the building is externally enclosed and without ornament like a fortress, and its porticos, halls and apartments a are grouped around two rectangular and extremely harmonious a arcaded courts, the court of myrtles, so named from the myrtles surrounding its water basins, and the court of lions, at whose flowing fountains 12 extremely conventionalized lions in black marble support the alabaster basin. (Fig. 249). At the north side of the myrtle court stands the massive Comares tower, which contains in its ground story one of the great magnificent rooms, the hall of the ambassadors. From the court of the lions the other four main halls are accessible, the vestibule-like hall of the mocarabes, the "hall of the sisters", the

gallery-like hall of justice, and the hall of the Abencerrages. Slender monolithsic marble columns coupled in rich variety, h horseshoe arches with very slight incurvature at bootom, stalactite and painted ornaments in inexhaustible richness and gleaming splendor of color characterize the internal treatment. As a unique artistic work of incomparable and magical beauty appear to us still those arcaded courts and interiors of the "red palace" of the last Moorish kings, dreamy and fabulous like their poetry and history.

In Persia but very few of the remaining monuments of Mohammedan architecture date from the earliest flourishing period under the rule of the Abbassides (750-1258). Their greater number belongs to the time from the 14 th to the 17 th century. The Persian buildings in general have a grand, earnest and monumental character, and both for mosques, as well as for medresses and mausoleums nearly the same ground plan. This represents a great court in form of a rectangle surrounded by arcades, extended by rectangular exedras at the middle of each side. Of the two exedras lying on the main akis, one leads to the p principal portal, the other to the hall of prayer. Externally the plan is indicated by massive and strongly projecting middle buildings with great and deep portal niches covered by ogee arches, and smooth circular and very slender minarets at the main portal (Fig. 250), and at the entrance to the liwan, further by the network ornamentation in brickwork, the general u use of the ogee arch, and the bulbous domes over the main interior, covered with blue enameled tiles.

A very regular plan of this kind is shown by the chief mosque of Veramin, erected 1322 (east of Teheran), likewise the great medresse of Bibi-Chanym at Samarcand (of the year 1399). The finest example thereof is afforded by the royal mosque of Shah Abbas the Great (1587-1629), erected with other splendid buildings on the Meidan (royal place) of Ispahan, the masterwork of the late Persian art. The two most important monuments in the provinces farther west, the mausoleum of Chodabende Chan in Sultanieh (1304-1316), and the magnificent Blue Mosque at Tabriz (erected 1478), unfortunately lying in ruins, again adhere to the Byzantine prototypes.

Mohammedan art extended to India in the 12 th century, and indeed from Persia. It was therefore unavoidable, that the Persian plan and treatment of the interior should be directly adopted, and in the first time be clothed in the forms of the ancient Hindu architecture, in which at first only the ogee arch and the bulbous dome appear as novelties. This Pathan a art, so-called from the Pathan dynasty (1206-1526), from the first has a tendency toward grandeur. Its most important works are:- the Kutub Minar at Delhi, i.e. the tall minaret of a mosque built about 1200 and now destroyed, further the Rani-Sipri mosque at Ahmedabad dating from the 15 th century with graceful and purely Indian details, as well as the chief mosque at Mandu (15 th century), kept in simpler and severer forms. A new and splendid period of Mohammedan-Indian art occurred under the great Moguls (1526-1707), that developed an almost boundless architectural activity. * Under them was fiest perfected an actual fusion of Persian-Mohammedan architectural forms with those of Indian architectural reliefs, so that an entirely new style arose, to which works of unheard magnificence and magnitude in wonderful perfection owe their origin. To what a rich development the architecture passed is evident from Fig. 251. (Treatment of window at Ajmir). Agra, the capital of the Great Moguls, and new Delhi were adorned by the most noble structures. The most prominent among these are; the Jumma mosque of new Delhi (built 1631-1637), an entirely regular plan, executed in white marble with inlays of red sandstone, and the grand chief mosque in Futtehpore Sikri, erected on a high terrace, from the second half of the 16 th century with a similarly treated ground plan. By far the most splendid architectural work is the Taj Mahal (i.e. the world wonder) at Agra, the tomb erected by Shah Jehan (1628-1658), a combination of the Persian-Indian plan with the Byzantine dome construction, executed in marble of different colors with inlays of precious stones at immeasurable expense and unexcelled magnificence.

** Earlier writers speak of them in a characteristic way: "they composed like the devil and detailed like jewelers".*

These late Indian architectural monuments appear to us, not only as the ideal of the highest oriental art imagination become reality, but likewise as the most splendid representations

in the history of Mohammedan architecture. In the later buildings is already expressed decay and an invasion of European art.

The centre of gravity of Mohammedan civilization and power again lay in the West from the middle of the 15 th century. In Asia Minor the Seldjuks had already developed a great architectural activity in the 13 th century, in which Persian a and Byzantine influences cross and appear in combination with Hellenistic-Roman forms. For the mosques the courts are wanting, among them being the chief mosque (1220) and the mosque of Sahib Ata in Konia, the capital of the Seldjuks (the ancient Iconium). On the contrary these always exist at the medresses, so for the medresse of Ibrahim Bey in Akseria near Konia, further at the Sirtscheli medresse (school of jurists), c completed in 1243, and the splendid Karatai medresse at Konia, built in 1251. In regard to magnitude and equipment, the most prominent monument of Seldjuk art is the caravanserai of Sultan-Han between Konia and Angora, erected in 1229 and measuring 389.5 × 198.8 ft.

Under the Osman Turks succeeding the Seldjuks already strongly appeared Byzantine influences on the soil of Asia Minor in the mosques of the chief cities of Broussa and Nicea, and after the conquest of the Byzantine kingdom, in the Balkan peninsula these became entirely dominant.

In Turkey the art of Islam chiefly appears as a revival and further development of the architectural ideas embodied in S. Sophia at Constantinople. This magnificent monument of Early-Christian-Byzantine church architecture was transformed into a mosque and then formed the ideal model for the numerous mosques of the capital (about 300 in Constantinople alone) and t the entire Turkish empire. Except that an improvement frequently occurs, when the central impression is enhanced by attaching four half domes to the main dome. In the European provinces of Turkey, particularly in Syria and the neighboring provinces, becomes perceptible in the 16 th century the influence of mediaeval tradition and the art of vaulting of the Persians in the sense of a powerful treatment of the architectural details. (Fig. 253).

As the most prominent works of Turkish architecture must be

taken:- the mosque of Mahmoud II (1468-1469) erected by the Byzantine architect Christodulos, the mosque of Bajazet II (1603-1617) at Constantinople, and the two chief creations of Simon, the most famous Osman architect:- the noble mosque of Soliman II in Constantinople (completed 1555) and that of Selim II at Adrianople (1566-1574).

The extension of Mohammedan architecture remained limited to the countries, into which the Mohammadan religion found entrance. It frequently influenced western art, particularly the ornamentation, and not only influenced the Normans in Sicily, but also in Spain, Christian art after the expulsion of the Moors (in the year 1492), where it produced that interesting Mudejar style (Mudejars or Moriscos were termed the descendants of the Moors), in which Moorish technics and Moorish ornamentation combined with Gothic and later with Renaissance motives into a new and charming architectural style. But otherwise the Mohammedan world of form always remained foreign in the West, as were the Sicilian Saracens and the Moors, and as the Turks still are today. It affords to us an extremely instructive example, how each isolated form of art shows a true reflection of the contemplation of the world forming its basis, a and of the individuality of the history of its civilization and spirit.

ARCHITECTURE

in its

Development from the Origin to the present Time

Introduction to its History, Technics and Styles

By

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PREFACE.

The scene of the art evolution considered in this volume is the West. In comparison to the first volume, which represents the progress of architecture among the peoples of antiquity a and of Islam in its wide extent from the Atlantic Ocean to the extreme Asian East, the present one affords a far more unified picture. The close racial connection of the western peoples, the frequent concord in their intellectual life and in the impelling forces for art creations compelled a similarity in the bases, that made possible a more thorough treatment of the problem of the handling of interiors and the resulting construction and form treatment in the periods of the middle ages and of the Renaissance, so full of importance for the history of the civilization of mankind. The lively approval enjoyed by the principles laid down in the preface to the first volume and the manner of its execution, allows the hope to seem justifiable, that also the second volume, to whose printing the publisher has again devoted especial care, that it may find favorable acceptance in the circles for which the work is designed.

Stuttgart. February 1911. Karl O. Hartmann.

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I. ROMANESQUE ARCHITECTURE.

I. General and historical basis.

Charlemagne left the Frankish empire founded by him at his death a well joined and immovable structure. But his successors were not strong enough to maintain it at its height. The unfortunate division of the empire, in which the empire was treated as the private property of the royal family, led to t the greatest internal ruptures. To the third agreement of division at Verdun (843), which caused the separation, important in the history of the world, of the German speaking peoples from the Romans, there succeeded a period of miserable decadence, in which the Frankish lands were almost without protection and a prey to foreign enemies. In it commenced as a late offshoot of the migrations of the nations the powerful mowements of the Normans (Vikings), the bold seamen of the high North, who from Scandinavia, their primitive Germanic home, visited the coast lands of Europe with ravage and robbery, then set foot firmly in France (Normandy) (912), conquered England later (1066), and finally even in the distant South founded a certainly short-lived but splendid kingdom in lower Italy and Sicily (1130). Thence scattered over the entire West, by internal dissensions and contests with external enemies, in the East with the Magyars among others, in the South with the Saracens, the German race now proceeded with undiminished strength. Their mightiest races, the Franks, Saxons and Swabians, adhered firmly together, and after the failure of the Carlovingian heirs gave to the eastern Frankish kingdom a series of m monarchs, under whom all German races were united and awoke to a national consciousness, such as was not the case under Charlemagne. With the founding of the "Holy Roman Empire" of the German Nation" by Otto I (in the year 962), a new period began for the West, that of the German middle ages.

Until then the western provinces of the Frankish empire had stood in the foreground of political and artistic activity. But now this role passed to the eastern Franks, to Germany, as the new embire was thenceforth named. The new state obtained its true basis by feudalism, that rested on the idea already developed in the Frankish empire, of a mutual and sacrificing

truth retained until death. An idealism produced this state system, and which never before nor afterwards had its like, and that in combination with the deep religious inspiration gave to the middle ages their peculiar stamp. Its most visible expression was found in knighthood and the ecclesiastical hierarchy. Then commenced a period of high importance to the history of the world and of civilization, which brought to the German empire its period of splendor under the Saxon, Frankish and Hohenstaufen emperors, to the German nations the climax of their power and their heroism.

This period also then found an expression in the architecture, which is to be counted with the highest works of the human intellect. There arose that national style of architecture of the North, later designated by the name of "Romanesque style", indeed because it came from the time in which the German intellectual life received its basal impulses from Roman civilization, and since it was directly connected to the Roman antique, fostered and revived by Charlemagne. But this appellation is so far insufficient, since even if many of its forms are prefigured in Roman art and that of the farthest Christian East, the Romanesque style did not have its native place in Roman c countries, but where the German nation possessed superiority, in Normandy, Burgundy and Lombardy, and in its richest bloom in the entirely Germanic Germany. It would therefore be better termed the "Germanic style". For it is the German individuality, that appears in all its forms. The inclination peculiar to the German nations for the expression of racial peculiarities, for subdivision into regions and families, which in general were closed to the external world and permitted a comfortable separate life, the unusual dissensions manifested in even the smallest matters, that were only restrained by the a all powerful idea of Christianity and the strong hierarchical conception of life in the period, -- these basal tendencies of the Germanic and chiefly of the German national character find a speaking reflection in the Romanesque style, and indeed in its separate solution not only by races but also by countries, in the expressed avoidance of all similar treatment of details, in the infinite variety of architectural and ornamental forms,

and finally in the combination of the masses by the ecclesiastical idea placed above all. Just therein, how the different members, often so diverse, exuberant in power and unrestrained, unite in a complete and harmonious whole, lies in great p part that harmony peculiar to Romanesque architectural works, by which the German national life receives such a characterisic expression.

With the entrance of the middle ages the entire art life of the West assumed an unexpected upward course. To architecture fell the part of leader. It was developed on the structures for religious worship. The bishops' seats and the monasteries became not only the most important locations of Christian civilization, but also flourishing homes of the arts, whose fostering lay first in the hands of the clergy and chiefly in those of the monks, who already on account of the different needs of the separate orders had an interest therein, for working as executing artists with the help of lay brothers. In the measure in which the arts were also placed in the service of the nobility, and of the strongly flourishing cities for satisfying secular requirements, the lay element also took an increasing part in the mastery of the numerous architectural undertakings. Finally it was the imperial court, which proposed to architecture the grandest problems and brought them to completion at its command and with its means. Thus even the architecture of the Romanesque middle ages was connected with the splendor of the empire, with whose fate its flourshing and prosperity were most closely connected.

II. Evolution of Romanesque architecture.

The Romanesque style was not originated by a definite race of the German people or in a definite country; it was rather developed in various and far separated works approximately contemporary and in an entirely independent manner. The reaction of the Roman antique cannot be mistaken. It expresses itself first in the elevated conception of art taught by the Romans, in the mighty impulse, which that gave in regard to the employment of columnar architecture, in the technics of vaulting and in the entore treatment of the interior. To a Roman or

Roman-Early-Christian basal form also returned the principal building of Romanesque church architecture, the basilica. In its further development may be followed the entire course of Romanesque art.

The basis of the basilica was already prefigured in its most important parts in the Carlovingian period (see Volume 1, page 179); the arrangement of the nave, transverse aisle and choir in form of a Latin cross, sometimes with the addition of a western choir, elevation of the choirs for the crypts, division of the nave into middle and side aisles, the installation of columns and piers to support the longitudinal walls and ceilings, inclusion of the towers in the building. (Fig. 1). The internal covering of the interior, excepting the apse, covered by a half dome, was always accomplished by the open framework of the roof, or by a horizontal wooden ceiling divided into panels or coffers. Likewise in the Romanesque period men adhered to this mode of covering, even if also in an ever more limited degree. (Fig. 2). (Fig. 3). But its small durability and easy destruction by fire led quite early to the endeavor to utilize for the basilicas the great advantages of vaulting methods, for which the Romans had left excellent models in their architectural works, which in many places still remained visible. Therefore men began in the course of the 11 th century (aside from isolated attempts at vaulting in southern France, already falling in the 10 th century, but remaining without further development) with the vaulting of smaller chapels and tomb churches, soon passing to the vaulting of the large churches, first in the side aisles and galleries, finally with advancing structural security, also in the middle aisles. Thereby was introduced an impulse into mediaeval architecture of high importance in the history of architecture. The construction of vaults powerfully affected the development of the plan, the treatment of piers and columns, the subdivision of the walls, and the handling of facades. The entire body of the structure was developed into an organism consistent in all its members and complete in itself.

Since the entire creation of the interior in ground plan and form was dependent on the mode of vaulting, to this was then

devoted the full attention of the architect. The simplest solution resulted from spanning the aisles by tunnel vaults with transverse arches as connecting the piers. It was chiefly common in southern France, where numerous Roman architectural monuments still exhibit this mode of construction. There are also found isolated domed churches and central buildings.

But of infinitely higher importance for western church architecture was the introduction of cross vaults. The Romans had already recognized their advantages for covering elongated rooms (see volume 1, page 105), and extensively employed them in their great designs for the baths. But the architects of the middle ages brought them to their highest perfection. In the first period men ventured only to construct round arched cross vaults, resulting from the intersection of two tunnel vaults of equal width and height.(See volume 1, Fig. 123). Thereby men were restricted to square bays in the arrangement of the ground plan, into which must be subdivided both the middle and transverse aisles, as well as the side aisles. To the latter was assigned half the width of the middle aisle, so that each two bays of the side aisles equaled one bay of the middle aisle. Thus originated the restricted Romanesque architectural system. (Fig. 4). Only after the architects had progressed so far in security of construction, that they could also proceed to cover rectangular rooms with tunnel vaults (Fig. 5) did the side aisles receive the same number of vaulting bays as the m middle aisle, and the ground plan acquired a perfect harmony. (Fig. 6). But this advance also already indicates the climax of the development of Romanesque art, at least so far as its style purity is in question. For the technical acquisitions pressed toward freedom from the restricted system, toward the abandonment of the round arch and its restraining consequences. In the search for a form of arch, in which the rise is independent of the span, so that one could execute vaults over spans of different widths with equal heights, men in Picardy (north France) already in the first half of the 12 th century hit on the fruitful idea of composing the vaulting line of two circular arcs. Thereby was the pointed arch (Fig. 5) introduced i into mediaeval architecture. From its employment and the str-

structural and formal results originated a new structural system:- the Romanesque style passed into the Gothic.

The entire art activity of the Romanesque middle ages ended in a restless progressive evolution. Its beginnings go back to the middle of the 10 th century, indeed in a limited sense even to the days of the Garlovingians. But in general for the Romanesque style in its formal development the year 1000 is to be regarded as the lower limit. A century later it also already attained its climax and after scarcely another century it also reached the last phase, that of the transition style. W With regard to the course of evolution, three periods are therefore to be distinguished.

I. The early period from 1000 to 1100 (horizontally covered basilicas, beginning of vaulted construction, heavy and undeveloped fomms).

II. The best period from 1100 to 1180 (horizontal ceilings replaced by vaulting, technically secure treatment of the latter, mature and elegant members and forms).

III. The late period (transition style) from 1180 to 1250. (Strong rise and free treatment of vaults, graceful and richest development of forms. Appearance of new elements, particularly of the pointed arch and of the buttress system).

For the limitation in dates of these periods the development of Romanesque art in the heart of Germany is chiefly considered. Other countries did not keep pace equally. In certain p provinces of France the Romanesque period ended already with the end of the first quarter of the 13 th century. Also even in Germany at the same time the elements of construction and form of the Gothic style there developed gradually found entrance, here till the middle of the 13 th century the basal character of the architecture remained still Romanesque in its entire course. The transition style denotes for Germany the last climax of its national character in the splendid time of t the Hohenstaufen emperors, freed from severe restraint.

A. Romanesque Church Architecture.

I. The ground plan.

The plan and treatment of the Romanesque churches is so varied, that scarcely a single one bears all the characteristic

marks. And still most buildings by the uniformity of their p purpose have harmonious traits, from which indeed may be established a normal scheme. This is particularly true for Germany, where the "restricted system" was most clearly and consistently developed. The ground form of the church building is formed by the three aisled basilica. (Except in southern France, single aisled basilicas are only found in smaller city and country churches; five aisled are rare). In the ground plan all dimensions are arranged with a definite ratio to each other (Fig. 4). A mass giving unit is the square arising from the intersection of the middle and transverse aisles, the crossing. Adjoining it on the east is the choir square with the semicircular apse, on the south and north sides being a square as the transverse aisle, and toward the west several squares are prefixed (generally three to six in Germany), which form the middle aisle. The side aisles receive half the width of the middle aisle; they open at the east into the transepts, which as a rule are enlarged by two smaller side apses in the opposite wall as terminations of the side aisles. In richer plans, already in part in the best Romanesque period, but especially common in the late Romanesque period, the side aisles are also continued beyond the transepts as choir aisles. (Fig. 7). On French cathedrals a number of radially arranged chapels are often attached outside the choir aisle, which permit t the erection of numerous altars and remarkably animate the eastern portion. (See volume 1, page 181). Double choirs and double transverse aisles still frequently occur in Germany in the early time of the ~~Renaissance~~ Romanesque period, (Fig. 8), but have an innate justification only for monastery churches, and they again gradually disappear in the late period. The inclusion of towers in the mass of the building is treated with increasing attention. Smaller churches receive one or two towers at the western end; for larger churches the number is increased to five or more, and in certain cases even to nine. Their grouping follows no definite rule. Most commonly four towers occur at the angles of the nave, two on the western facade and two in the angles between choir and transverse aisle; then they solve an important statical problem, since they chiefly opp

oppose the thrust of the vaults acting in the longitudinal direction. Yet they also frequently flank the apse or stand at the sides of the gable, sometimes also at the angles of the transepts. (See Figs. 17, 36, 45 and 9). Evidently determinative in the arrangement and treatment of the towers was the s striving for picturesque effect and for a living expression of the heaven aspiring idea of Christianity. Over the intersection of transverse and middle aisles usually rises a polygonal crossing tower. (See Figs. 9, 36, 44). The crossing piers supporting it are consequently particularly strong. Not rarely also the crossing or the entire transverse aisle is taken into the raised choir (presbytery), and this is enclosed by low balustrades (concelli). In their places occur in the later time (analagous to the Byzantine iconostasis; see volume 1, page 188) high enclosures, that open by doors toward the middle aisle and are frequently treated as galleries. On these galleries, reached by winding stairs from the choir, was read the gospels, from which they received the name of "lectorium", the name of "lettner" (rood gallery) being derived from that. (See Fig. 162).

The importance of the crypt as a burial church beneath the raised choir goes back into the 12 th century. By the influential and widely extended building schools founded by the Benedictine Order at Cluny in Burgundy and by the Hirsau congregation in Swabia, this was entirely opposed (on the other hand with it the continuation of the side aisles as choir aisles forms the rule). To the windows were given at first very small dimensions, in order to weaken the walls the least possible against the strong thrust of the vaults. They lie in the side walls of the nave, in the apse, and in the clearstory walls of the middle aisle. (See volume 1, page 151). For the same reason are the portals strikingly small. They were arranged, as on the Early Christian and Carlovinginan basilicas, in the western facade as separate entrances to the different aisles or between the two facade towers, or also and especially in churches with double choirs in the sides of the side aisles, the transepts, or in the southern or northern walls of the nave.

The large atrium of the Early Christian churches is omitted

almost without exception. The former portico (see volume 1, page 176) remains as a small open room inserted between the western towers or prefixed to the entire width of the facade, to which the name of "paradise" was given. The holy water basin placed within it at the entrance recalls a recollection of the former cantharus. (See volume 1, page 149).

The location of the high altar, to which are added side altars in the smaller side apses, the cathedra and the seats for the priests, the division of the interior for the clergy and the people, follow the model given in the Early Christian basilica. (See volume 1, page 149). Since sufficient space was at the command of the clergy in the presbytery enlarged by the choir square and the crossing, and also sometimes by the entire transverse aisle, there could be an aisle taken from the f former enclosure by balustrades in the nave.

Besides the longitudinal church system described here , there yet occur central plans among Romanesque church buildings. These are more common in southern countries (Italy and south France) than in the north, erected chiefly as baptismal chapels (baptisteries) beside the main churches, as churches of the Holy Sepulchre, or as chapels for the dead (so-called bone houses) in cemeteries. Parish churches based on the central scheme are more rarely found and then are explained by the particular conditions and relations of the countries and masters c concerned.

2. The structure.

The development of the churches in height was carried on in the early time of the Romanesque period still entirely within the limits of the always low antique-Christian basilicas. Yet in its further progress the dimensions begin to increase, and in the best period of the restricted system (about in the second half of the 12 th century), the height of the middle aisle to the springing of the vaults generally attained twice the b breadth, thus being twice the side of the crossing square. B But advances far beyond this measure were made finally. The structure itself is essentially determined by the mode of framing of the ceiling. So long as only visible framework of the roof or horizontal wooden ceilings came into consideration, t

there are also found more purely columnar basilicas, in which the walls of the middle aisle rest entirely on columns. But already in the Carlovingian churches (Einhart's basilica at Steinbach; volume 1, page 181), the columns were replaced by the strong piers; these predominated during the entire Romanesque period. Yet also continued the alternation of piers (at the angles of the squares of the middle aisle) and columns set between them, which is first proved among the German churches indeed on the long since destroyed abbey church at Lorsch, dedicated in the year 774 (see volume 1, page 182), being especially frequent in the Saxon provinces. (See Fig. 8).

With the vaulting of the aisles another problem fell to the pier. It not only received the tolerably uniformly distributed weight of the wall, but became a supporter of the vault, a and as such was dependent on it. The pier must then first correspond in strength to the load assigned to it, while if the great vaults of the middle aisle rested on it, it was to be made more massive, than if it only had to support the smaller vaults of the side aisle. But it must also be arranged in form according to its structural problem, when the members of t the vault required corresponding support by rectangular projections on the pier or pilasters, extending from the impost to the base of the pier. Thus originated the main and intermediate piers, as well as the compound piers. (Figs.10,.11). On them the statical function also came to be expressed decoratively. With advancing skill in vaulting they experienced an even richer treatment. The entire structure thus received by the internal alternating effect of supports and the forms of the ceiling an animated and rythmic treatment. (Since the church architecture of the 12 th century frequently undertook the vaulting of such basilicas, that originally had horizontal wooden ceilings or were intended therefor, the form treatment of the supports frequently omits a regard to the ceilings.

The earliest vaulting of Romanesque churches in the great style was carried on as entirely independent undertakings at the same time in three widely separated regions; for example in Burgundy at the abbey church of Cluny (1089-1095), in the Rhine provinces at the cathedrals of Spires (between 1080 and

1100 and Mentz (begun 1081) and in Lombardy at S. Ambrogio in Milan and S. Michele of Pavia from the second half of the 11 th century. All of them are based on a unified system, in so far as the elongated interior of the aisles is first spanned by several transverse arches, sometimes rising from the projections of the piers. These produced a subdivision of the ceiling into separate bays or areas, which were then vaulted. For the building first named, as for numerous French churches that assume a separate position in this respect, as we shall see later, the tunnel vault was chosen for the middle aisle. The others have the cross vault, infinitely more important for the evolution of mediaeval art. (See volume 1, page 105). This shows itself as particularly suited for church architecture, since the entire ceiling load is transferred to the lower ends of the groin lines, the transverse arches and their repetition on the walls, the side arches, and consequently entirely rest on the piers. At first the vaults were still unusually heavy and deep (in certain places up to 6.56 ft.), whereby is also explained the extraordinary thickness of the piers and abutment walls. The endeavors of the architect soon proceeded to reduce the weight of the vaults and particularly the strong side thrust resulting therefrom. On the original cross vault produced by the intersection of two tunnel vaults, the groin lines form a flat ellipse, since their intersection is at just the same height as the crown of the round arch. (See volume 1, page 123). This produces a much greater side thrust than a s semicircular or stilted arch. To obtain a reduction of the thrust, men began gradually to raise the diagonal arches. About the middle of the 12 th century, these reach the semicirc-
12 le. On the separate tunnel compartments the line of the crown was no longer horizontal, but it rose toward the common vertex in the form of a flat arch. The vault compartments (these are the spherical triangles between groin lines and transverse or side arches) were swelled upwards, so that the swelled (bosom) vault was produced. (Fig. 12). In recognition of the high importance of the groin arches for a proper reduction of the vault, men finally decided (in Germany at about the end of the 12 th century, in Norman France already in its second quarter),

to construct them like the transverse arches as projecting diagonal arches, combining them at the intersection in a boss. Thereby the bay was divided into a network of ribs, between which the compartments could be turned with unequal and less thickness. These ribbed cross vaults (Fig. 13) indicates an extremely important advance in the entire structural system. From its consistent use resulted most structural innovations of the transitional period and of all later mediaeval architecture. With the introduction of cross vaults first in the side aisles, then in the middle and transverse aisles, and with the execution of choir and cloister vaults (see volume 1, page 106) over the apses, and with the crossing was subsequently completed the creation of the interior of the cross vaulted basilica.

During the entire Romanesque period, the form of the pure b basilica predominated with lower side aisles, raised middle a aisle and widdows in its clearstory walls. (Fig. 14). Yet other types of plan were developed with reference to the treatment of the interior or for structural reasons. The crypts were quite early covered by cross vaults and always had aisles of equal height. (See Fig. 82). In the little chapel of S. B Bartholomaüs at Pederborn (Westphalia) of the year 1017, the first example of the entire covering of an upper church by cross vaults in Germany, these in the same manner and manifestly under the influence of this crypt vaulting, are carried to equal heights over the middle and side aisles. Thereby was obtained indeed an interior supported by piers but of equal heights and consequently unified. Thus arose the system of hall churches. (See Fig. 15). A structurally favorable change was produced by the insertion of a vaulted intermediate floor in the high side aisles with the development of the upper stories thus formed into galleries. In these hall churches with galleries the intermediate floors produce a stiffening of the piers, and the transverse arches turned between the different divisions of the gallery with the leveling masonry above causes a side resistance to the middle main vaults. The impression of the interior approximates that of the basilica, but is inferior to that, since the upper walls of the middle aisle have

no direct light. To obtain a clearstory, men raised the walls of the middle aisle above the roofs of the galleries, and thus created a new type, that of the vaulted basilica with galleries. (Cathedral at Limburg-a-Lahn; see Fig. 16).

Differing from this general course of development of vaulted construction of the Romanesque period, that of the church buildings in France struck out a new path, especially in its southern provinces. It evidently commences with a direct imitation of Roman architectural methods with the spanning of a nave with single aisle, a so-called hall church, by a tunnel vault, that is subdivided into bays by transverse arches, which rise from wall piers like the antique or half columns. The nave ends at the altar and without the insertion of a transverse aisle, but with a square raised choir room, frequently covered by a dome, and an adjoining polygonal apse. But very early and after the end of the 10 th century was also developed the system of the hall church, that soon became at home in the Rhone valley as well as in the extreme south and west of France, and from thence penetrated into the north as well as beyond t the Pyrenees into Spain. The insertion of galleries again gave a certain agreement of the interior created with the basilican type, which predominated in middle and northern France, both with and without galleries. Here the vaulting movement on the whole followed the normal course already described, while in a rather limited domain of the southwest, in Aquitaine and under Byzantine influences, the vault bays divided by transverse arches are covered by pendentive domes (see Fig. 58). The tunnel vaults maintained themselves elsewhere. On three aisled churches the tunnel vaults either lie parallel to the longitudinal direction or the side aisles have half tunnel vaults, whose crown line abuts against the walls of the middle aisle, thereby affording great advantages in construction, when they transfer the side thrust of the main vault to the external walls like flying buttresses. (Figs. 59, 61). This effect was obtained by placing the tunnel vaults transversely in the side aisles. These were soon succeeded by their intersection, and thereupon the adoption of cross vaults, first in the side aisle and finally also in the middle aisle.

With the increasing certainty of the mediaeval architect in

vaulted construction appeared a reduction of the wall masses corresponding to the lessened weight and side thrust of their vaults. Their intersections at doorways and windows became gradually longer. The latter generally continued narrow and small in the outer walls of the side aisles, but were enlarged in the clearstory walls of the middle aisle. The interior of the church was consequently filled with a mystical dim light, somewhat lighter upwards. The most favorable light was furnished by the windows in the polygonal drum of the crowning tower. Likewise the western and side towers received in the lower stories only small and slot-like openings, but still above the roof were made more light and graceful by the larger single and coupled windows. Particularly open was arranged the u uppermost story, intended as a bell tower, in order to allow free passage to the sound of the bell. Conical or pyramidal spires, frequently massively constructed of cut stone, on which for square or polygonal plans, small gables usually rise above the different sides, forming the termination. (Fig. 17). For the external covering of the remainder of the building remained in use the gable, shed, hip and conical roofs, already common in the antique Early Christian period, with a covering of tiles, slates or metal (lead).

The technical methods exhibit in the beginning the still fumbling uncertainty of the builders in construction and form. These were even then chiefly of the clergy, who had no training in building. Only after taking into service suitable lay brothers for the erection of the buildings was developed a permanent race of mechanics, who indeed according to need traveled from one building site to another, was gradually crystallized technical knowledge. An arrangement of plan and preliminary calculations of the project for a church in the modern sense indeed never occurred. Frequently without regard to whether the means were adequate, the buildings were commenced, indeed as a rule with the most important part, the altar house. But not rarely must work be stopped and the buildings utilized; the enlargement and completion of the structure was a work of a much later time. From inaccuracies in the dimensions of the ground plan, for which the square still afforded a convenient

unit of measure, the variation from the right angle in the plan and the like permits the conclusion, that men also depended on very primitive tools and expedients. In the construction of the building the statical feeling, gradually attaining high development in regard to the treatment of piers and vaults, w was often entirely wanting in a very important part, the substructure. The walls, so heavy in themselves and loaded by the masses of the vaults, usually had such insufficient foundations, and indeed set so flatly on the ground, that notable settlements already occurred during the construction, of which the "leaning towers" afford evidence today.

The material itself was mostly good. Men particularly understood how to prepare an adhesive and durable mortar. The marble in Italy produced a splendid effect and permitted the richest moulding and treatment in relief. In France indeed men h had a less noble material at command, yet a fine-grained and easily wrought limestone; but in Germany on the contrary were chiefly colored sandstone and tufa, that in certain regions and especially on the Rhine permitted a finer chiseled work, but in other provinces the coarse-grained or porous structure precluded this. As the most excellent masonry was ranked ashlar construction, for the animation of which by bands and surface patterns of polychromatic stones appeared a special preference in Italy, as well as partially in the north. In using quarried stone, men chose a better material as a rule for the angles, mouldings, columns, piers and moulded members. In the bonding occur occasionally the opus reticulatum and opus spicatum, known from Roman remains of buildings. (Volume 1, Fig. 105). Very dangerous proved to be the widely extended use in the Romanesque period,of wooden timbers inserted in the external walls in order to distribute the pressure and for anchors, still to be seen in the west building of the church at Wimpfen-im-Tal, in the west choir of the cathedral at Worms, and on m many other monuments. With other things it led to the collapse of the northern west tower of the foundation church at Fritzlar in the year 1368, and it was also manifestly one of the chief reasons for the fall of the tower of S. Marco in Venice.*
Likewise the brick construction, already native in Lombardy

since the Roman period, in the 12 th century found entrance a and zealous use in the north German lowlands, where natural s stone was only procured with difficulty. It there bears in t the details numerous traits harmonizing with those of the brick architecture of upper Italy. (The mediaeval wall bricks chiefly differ from the antique-Roman, in that the latter shows a deep red with a height of only 1.18 to 1.97 ins. and a length of 7.87 to 11.81 ins., while the mediaeval bricks have a l lighter, yellowish-red color and are considerably higher, 3.54 to 4.72 ins. thick and about 9.84 ins. long). With the extension of stone and brick construction receded the importance of wood as a building material. Only in the high North, in Scandinavia and the adjacent countries, in which the churches were externally constructed of wood, it likewise continued in the middle ages.

** Vitruvius had already recommended for masonry inserted anchors of "charred" olive wood, i.e. charred over a clear fire, and which is infinitely more durable than oak or fir wood.*

3. Architectural treatmment and decoration.

Like the entire structural system, so was also rooted the f form expression of Romanesque art in the ground of the German= Roman antique, permeated by Byzantine and Syrian-Early-Christian tendencies. But during its growth it adopted in ever richer measure materials furnished by the northern German civilization, under whose influence arose changed and novel forms, which permit the primitive forms to be recognized in but general ways.

The internal architecture was substantially determined by t the method of treating supports and ceilings, by the subdivision of the walls, and by the openings in doorways and windows. On columns and piers continued the classical divisions into base, shaft and capital. But otherwise they followed no binding law. According to the structural requirements, the columns are sometimes unusually thick and stumpy, sometimes thin and slender, especially the latter when they project from the piers as half columns. The base of the column retains the profile of the Attic base (Fig. 19), is at first unusually high, approximating classical proportions in the best period, but l

later becomes ever lower, appearing finally as a plate edged by a deep scotia, from which the torus lying on the plinth projects in a wide and flat form. A transformation of the base exclusively belonging to the Romanesque style was effected by the corner leaf, an addition at first like a block or knob, then ornamented in animal and plant forms of infinite variety, placed on the angles of the plinth (Fig. 20). -- It first appears in Lombardy, but already 50 years later is at home in G Germany and there forms a characteristic of the art of the 12 th century. With the beginning of the 13 th century the angle ornament was supplanted by the annular moulding, projecting even to the angles of the plinth.

The column shaft is mostly monolithic (made of one stone) in Germany, in this case being somewhat diminished, but without entasis. It there remains in general more slender than in England and France, where as also in part in Italy, is preferred the construction in courses. The external surface is mostly smooth and seldom fluted, but usually in the later period is covered by zigzag patterns, strap, rope, scale and interlaced ornament. occasionally occur knotted connections at the middle of the shafts of thin coupled columns. In Italy the columns are usually twisted in the most varied alternation and inlaid with costly mosaics. (Figs. 21, 69). The late period enriched the shafts further with the column band, an intermediate shaped moulded member inserted at its middle, first occurring on the small columns and giving them a good connection with the wall, also later passing to the free supports also as a characteristic mark of the transition style. (Fig. 40).

An infinite variety of novel forms was matured on Romanesque capitals. Originally imitated from antique forms in the C Carlovingian period (Fig. 22), they ever become more permeated and transformed by northern ornamentation, until the Roman fo form of the unknowable was approximated and was perceived to be neither clear nor beautiful. Therefore men passed to the selection of the simple square boss form for the head of the column, rounding this off on each side in a semicircle opening upwards, whereby a strongly supporting curved line extended between the abacus and astragal. Thus was obtained the cu

cushion capital, characterizing the best time of the Romanesque period. (Fig. 23 A). This permitted in a simple and esthetically tasteful manner the transition from the circular form of the shaft to the square of the impost of the arch, and it affords in the semicircles and the underside surfaces suitable for relief ornament, that developed an almost fabulous wealth of highly imaginative band and plant ornament, richly permeated by the mystical symbolism of grotesque human and animal figures. Even if still rare, the cushion capital was already found before 1050 on this side and beyond the Alps, earliest in Germany on the western choir of the Minster at Essen (volume 1, page 178) and in the church of S. Michael at Hildesheim (1001-1033; Fig. 41), but became naturalized in Germany from the middle of the 11 th century *, there dominating all architecture during the entire time of the best Romanesque period. As transformations of the basal form are to be regarded the four-parted cushion capital of the art of Alsace and of the lower Rhine, the octopartite in the region around Lake Constance, and the scalloped or folded capital characteristic of English architecture. (Fig. 79). In north German brick architecture is already found the trapezoidal capital already prefigured in Lombardy. (Fig. 23 B). In France the cushion capital never was actually naturalized; there the inserted frustum or a pyramed or cone predominated as the nucleus form of the capital. In Italy and in some regions of Germany the figure capitals enjoyed greater favor. (Fig. 24 A). The so-called historical capitals" often present in their relief ornamentation an entire story in connected representation and distributed over an entire series of columns. With the beginning of the last quarter of the 12 th century, the use of the cushion capital diminishes; in the place of the heavy square block as a basal form occurs the slender bell. The capital with buds (Fig. 24 B) found entrance and soon became a characteristic mark of late Romanesque art. It was succeeded from about 1225 onward by the bell with leaves capital (Fig. 25) as the last stage of the forms of Romanesque capitals. -- The abacus added to the capital is mostly strikingly high, treated with strongly supporting mouldings, and it is decorated by relief ornamen-

ornament in the richer development.

* *About the same time (1050) "disappear in Germany the reminiscences like the antique." (Dehio). Further see page 24.*

The piers chiefly follow the columns in the forms of their bases, are made in courses, are circular in Norman England and also partly in France and Italy, but in germany are of square section, originally simple and plain, later with chamfered or coved angles and also frequently with the addition of graceful and slender little columns in the corners. As upper termination they receive a square abacus, chamfered below or moulded with torus, ogee or cove, more rarely ornamented or having its own sculptured capital similar to that of the column. With t the development of vaulted construction the pier also received an increasingly richer treatment, while from it projected or were inserted in the angles, rectangular pilasters, half or three-quarter columns, corresponding to the transverse arches and ribs of the vault. (Fig. 11).

Besides columns and piers, Romanesque art also employed corbels as supports, i.e., consoles, that project from the walls and receive the imposts of the vault ribs, if the wall or member of the pier were not prepared for them. Fig. 26). At first made simple, only reduced below or returned in torus, cove or ogee members; they later also diminish in width downward, and finally have the form of pyramids, deeply moulded or covered by ornamental work.

To the arches rising from the columns and piers is generally lacking the moulded archivolt common in the antique. Likewise the internal walls have no further subdivision; this was not necessary, since the walls were generally covered by a series of pictures. Narrow and slightly projecting belts, at first merely a slab with beveled lower corner, later formed with a flat cove and mouldings, extend above the arcade arches, below the rows of galleries and windows, sometimes also at the height of the uppermost capital, but frequently are entirely omitted. Where recollections of the antique have a stronger influence, or where a more animated effect in relief was intended, the bands were more strongly accented and more richly developed. In this Romanesque the frieze decorations present unusual

variety. Most commonly are found the round arched friezes (see volume 1, pages 143, 157), both in their simplest form, only composed of voussoirs, as well as also with consoles, enclosing mouldings and ornamental work. The arches are sometimes interlaced. The round arched frieze is indeed but seldom employed in the interior (Fig. 63), but so much the more frequently on facades.

Other and frequently recurring forms of friezes are:-- the Romanesque dentils (with dentils set diagonally), the billet moulding, the zigzag, roll, scale, chessboard, lozenge, rope and sphere friezes. (Fig. 27). To these are also added the ornamental frieze developed from plant and animal motives (Fig. 34), which are either entirely freed from a geometrical basis or only subordinated thereto in their main lines.

A very expressive treatment of the walls is effected by the narrow columnar galleries or passages inserted in the thickness of the wall, and gradually occurring instead of galléries, the so-called triforiums (see Fig. 109). If horizontal wooden ceilings still occur, they are no longer divided in panels or coffered, as in the Early Christian basilica, but are sheathed smooth and painted.

The vaults first receive an architectural treatment with the addition of the vault ribs. The gradual transition of the ribs from the rectangular cross section to the compound profile, in which the round always dominates and to the pointed round of the transition style is apparent from Fig. 28. An example of the keystones with very varied forms and ornamentation is given by Fig. 29.

In Germany the windows lie in the middle of the wall, but in Italy, Spain, England and a great part of France are at its o outer surface. In order to ensure the most favorable admission of light through a relatively small opening, the jambs (the wall surfaces enclosing the door or window opening) are strongly splayed, in Germany both externally and internally, elsewhere only internally. For the closure was glass now generally employed instead of the earlier curtain or wooden shutter, and this quite early reached an artistic use by its composition in different colors and patterns with the leading and the true g

glass painting. (See page 98). In the early and best periods the window openings are almost always covered by a round arch. They are frequently coupled, especially on the towers, i.e. divided into two, three or more openings by the insertion of dwarf columns. Above the little columns then lies an impost extending through the entire thickness of the wall. With a more elegant construction (Fig. 30), the window jambs are subdivided, either recessed externally in steps with the addition of small columns in the angles thus formed, or even furnished with an enclosing member, in which the rounds predominate. The The late period introduced new forms of arches, among the impulses coming from the East by means of the crusades, among which occasionally occur even the horseshoe and foiled arches. A permanent element of mediaeval art became the trefoil arch, and especially the pointed arch, the latter gradually almost entirely supplanting the round arch. A new idea was also formed by the rose or wheel window as a great circular opening in the wall, subdivided by inserted columns like spokes or by bars, and which was preferably arranged in the gables or over t the entrances. (Fig. 31).

Great attention was devoted to the construction of entrance doorways, especially those of the main portals. In the early and best periods they are likewise spanned by round arches, later in part by pointed and trefoil arches, but they generally have a straight lintel over the actual doorway, in order to obtain a semicircular tympanum for the addition of relief ornament. (Fig. 48). The unusual thickness of the walls already required, so that the House of God might be quickly emptied, a funnel-shaped splaying of the jambs. With the most common mode of treatment, these are subdivided in several rectangular steps; in the resulting angles were then set columns or rounds with simple or richer and varied treatment. (Fig. 32). Thus sometimes square-edged piers alternate with round columns on the j jambs of the portals, and that are also continued in the arches, enclosing the tympanum like a frame. The late period yet enhanced the magnificence of the portal by the addition of statues, which were then preferably placed in the angles of the square piers, hollowed out for them add on small pedestal columns. (Figs. 48, 75).

The external architecture in its general appearance permits the ground plan of the church structure to be clearly recognized; we see the nave with the middle aisle above the side aisles, the crossing of nave and transepts, the chbir or choirs with the apses and the massive towers, that animate the entire organism and strengthen it in a sense. The external structure commences with a plinth, whose upper member is profiled like the Attic base, as a rule. It extends around the entire building. Above it rise projecting narrow wall strips, by which the external wall surfaces are divided into bays, in the middle of which lie the windows. (Figs. 9, 36, 44, 45). Instead of the wall strips are also frequently employed slender half columns (Fig. 18) or pilasters with bases and capitals. In the later period the wall strips project further from the face and thus increase the thickness of the wall, then corresponding to the internal supports. Finally they pass into the buttress reduced upward by several offsets. Below the roof cornice, the belts and inclined gables, the wall strips are connected with the round arched frieze, so particularly characteristic of Romanesque architecture. (Fig. 33). The apses frequently have a preferred treatment by blind arcades. Horizontal s subdivisions of the external walls by belt courses are usual in Italy, France and England, but in Germany are scarcely found except on towers, where they serve for the division into s stories, and as a rule are furnished with the Romanesque dentil band and other decorative forms. The exterior of a great cathedral receives the most splendid architectural decoration by the triforium extending below the base of the roof.as a dwarf gallery; these are particularly favored along the Rhine, and are wonderfully beautiful on the cathedrals of Spires, Worms, and on the churches of Cologne. (See Figs. 17, 36). A main cornice, of form similar to the belt cornice but more strongly accented , and having round arches and other frieze decorations above each other and often greatly varied, forms the upper termination of the external wall surfaces. Besides the ornamental forms mentioned on page 20, Romanesque ornament (F (Fig. 34) yet takes an important part in the decorative treatment of the architecture. Derived from antique tradition, th-

that was not transmitted in its original purity, influenced by Byzantine and Syrian-Early-Christian conceptions, and dominated by the expressed desire to please in the most varied changes, it soon passed into a peculiar development. As basal elements are to be designated geometrical patterns and interwoven bands in often irregular combination, plant motives, animal a and human figures. Since skill in stonecutting was frequently lacking to the stonemasons, the acanthus forms pass into dry and ragged shapes and almost entirely disappear at about the middle of the 11 th century. (Indeed these still appear in the 12 th century on a series of monuments, for example also on t the portals of the cathedral at Spires originating about 1180, charming acanthus leaves in Grecian treatment, which indeed indicate a direct connection of their designer with the East by the relations resulting from the crusades. (See volume 1, page 198). Plant motives employed in Romanesque ornament are not conceived naturally, so that one might recognize a particular kind of plant, but they are treated purely conventionally and are strongly conventionalized. They are mostly leaves with three, four or five divisions with strongly expressed ribs and lancet or rounded lobes and margins, added to the bands a and scrolls and subordinate to these. Generally certain bands, leaf ribs and edges are beset by rows of beads or lozenges, t that recall the nail heads of armor. Animal and human figures, fabulous beings and symbolical forms of all kinds pass over d directly into the foliage, scrolls and bands, representing Biblical or historical materials, but are frequently only an expression of an animated, very grotesque imagination, saturated with the gloomy and demonic representations of the northern s series of sagas. (See volume 1. Animal ornamentation). The technical execution of the ornaments adheres in the earlier t time to the flat incised handling of Lombard ornamentation (s (see volume 1), but later passes into representation in relief, with skilful figures in sharp cutting, wrought almost free, a and an intense alternation of light and shade. The powerful treatment, the precious freshness and naturalness, and the inexhaustible variety of forms, in which the formative power of the imagination cannot do enough, lend a very particular worth to Romanesque decorative art, even in comparison with the clear

and finely executed ornamental work of the antique.

Monumental sculpture begins in the first half of the Romanesque period with tasteless attempts (bronze doors on the cathedral at Hildesheim, completed in 1055), but it passed through a mighty upward course in the splendid time of the Hohenstaufens, which may be recognized in the rich ornamentation of altars, rood screens, pulpits and portals with statues and sculptures in relief. (See Figs. 48, 75). With all their awkwardness, the figures exhibit the method of a fresh and natural s sense, combined with a feeling for style trained by the architecture. In the physical proportions are they still quite defective, in post or movement being still stiff; but they have in their faces a strong and solemnly earnest expression, which evidences a noble and deeply religious conception.

A great problem falls to painting in the Romanesque period.* Over the entire interior of the Romanesque church extended an animated polychrome treatment, by which the architectural members were emphasized,and the wall surfaces and ceilings received a tapestry-like and brightly colored covering. (Fig. 35). In bold and usually black outlines are drawn the ornaments forming the frieze and panels, and the separate surfaces thus enclosed are filled with simple colors without any indications of shades. Likewise in the pictured representations of scenes from the Bible or the life of the patron saint, the figures h have no modeling in relief. They are executed in the same manner as the ornaments, conventionalized with refined rythmic f feeling, and they are arranged modestly in the enclosures afforded by the architecture. The deep repose, that rests upon these representations, the warm tones of color poured out over the interiors enhances and perfects the earnest and reverent harmony and surrounds the Christians entering for a contemplative assembly and quiet devotion. Likewise the exterior of t the Romanesque church combines in a harmoniously united and r rounded entirety. The Rhythmically arranged and graduated masses of the building, whimh permit a clear recognition of the purpose of the enclosed rooms, presents by its picturesque grouping and highly monumental treatment extremely impressive effects of solemn dignity and augustness. (Figs. 9, 17, 36, 45).

** On the evolution of glass painting, see Chapter 2 of this volume, page 98.*

In the general view of the Romanesque architecture of Germa-
20 ny the late time, the period of the transition style, occupies a distinct place. During its entire course is expressed a lively change in the construction and in the architectural forms, a joy in handling and an imigination, such as seldom manifested in the history of architecture. Such times always appear especially accessible to innovations and to foreign influences. Therefore the architectural style developed meanwhile in France, by which the Gothic style was founded, soon found entrance into German lands. Considered in connection, the transition style is characterized by the following chief phases.

Men took over the pointed arch as a vaulting line as well as a new element of decoration, the vault ribs, the polygonal choir ending, that was more suitable for the treatment of the vaults over the choir, than the round apse. Likewise in the arrangement of the ground plan did men gradually become freed from the system restricted to squares, made the middle aisle widen and let the bays continue, so that the middle and side aisles received the same number of vaulting bays. With rega-
21 rd to the ribs were arranged more richly subdivided piers, the doorways and windows were enlarged, and the walls were relieved by increasing the wall strips to stepped buttresses. (Fig. 23). But the round arch still continued in use, though it was supplanted by the pointed arch, especially in the arcades of the middle aisle, and also partly by the trefoil arch. (See the door closure composed of two quadrants and a semicircle in the round arched tympanum of Fig. 32). The latter found a favorite place over doors and windows, and is especially common in blind arcades and triforiums, which enjoy great favor as an effective means for animating the external and internal surfaces of the walls. Also other forms participate in the general movement. The columns become more slender and are usually coupled, i.e. have a common abacus. On the low and deeply coved base the corner leaf disappears, since the lower wide torus projects beyond the angles of the plinth. The shafts receive at the middle the column ring. The heavy cushion capital is

gradually replaced by the lighter and more elegant bell and b bud capitals. The heretofore simple and smooth archivolts of the arcades and windows are enclosed by round and cove. The cornices become weaker, more lightly profiled and formed with deeper coves. Finally the profile of the round in the diagonal ribs of the cross vault begins to approach the pointed round. (Fig. 28). With the strong raising of the vaults, the openings in the walls become larger and the buttresses thicker. The roofs ever become more steep; the tower spires higher and more slender. And thus is completed quite gradually and almost unnoticed the perfected transition to the Gothic.

4. Peculiarities of Monastery Churches.

Likewise to western monastic architecture did the era of Romanesque architecture bring the classical age and a term of e extraordinary fruitfulness. There were chiefly three ecclesiastical societies, that powerfully influenced the evolution of mediaeval monastic life and architecture: the monastery at Cluny in Burgundy produced by the Benedictine Order (Volume 1, page 182) in the 10 th century, and its daughter establishment, the monastery at Hirsau in Swabia, and the influential monastic Order of Cistercians, likewise a branch of the Cluniacs at about the end of the 11 th century, whose original monastery lies at Citeaux. (Western France). While the Cluniacs and with the Hirsau monks set as an aim an improvement in ecclesiastical conditions by a reform in monastic life, by an elevation in the customs of the clergy, and the utmost separation of the c clergymen from secular interests, the Cistercians saw in the return to the severe rules of the Order of S. Benedict their life problem, and indeed they took up these in their most original form, devoted to agricultural activity. Unoccupied anf marshy, even unhealthy lands covered by standing water (Cisteaux, cisterns) should be transformed into fertile soil, but the copying of books, painting of miniatures etc., should be dropped. It was infallible, that the principles of the different Orders should be transferred to the architectural style and lead to a definite regulation, which should then by their great extension, the Cluniacs chiefly in France, the Hirsau monks in Germany, and the Cistercians in almost all civilized

lands of the time, won a mighty influence over the entire evolution and spread of mediaeval art.

The building programme already described for monastic designs in voluce 1, page 183, the nave church and the arrangement of the separate structures was also substantially retained in the result. An exception from this was made by the Templars, for whom the Dome of the Rock erected at Jerusalem on the site of Solomon's temple (volume 1, page 216) served as a prototype, and who therefore arranged their churches as central buildings with a columnar aisle, and the Carthusians, who prescribed to the monks the hermit's life and thus favored the system of cells.

The architecture of the monastic churches exhibits special peculiarities for the different congregations.

The Cluniacs had for their earlier and more severe architectural type the model in the abbey church of Cluny, dedicated in 981, a horizontally covered, three aisled columnar basilica with eastern transverse aisle, rectangular choir ending, two rectangular chapels as side choirs, and two massive western towers above a vestibule. This scheme of plan was adopted by the German daughter monastery at Hirsau as a model for the churches erected by it and its congregations. The later Burgundian school in the climax of the Cluniac Order abandoned their former principles of simplicity in design and equipment instead of the previously erected churches of the Order. The building constructed in 1089-1095 and 1131 (Fig. 38) contained five aisles, two transverse aisles and five radially arranged c chapels. Further the transeots were each enlarged by two apses on the eastern side. About 1220 the building was yet extended by a therr aisled pro-church belonging to the transition style. Thereby was attained the length of the old church of S. Peter in Rome. For the internal equipment were employed costly materials, in part even Pentelican marble. The exterior received a grand treatment by the animated subdivision of the architectural masses and the seven towers (over the crossing, the intersection of the inner side aisle with the larger transverse aisle, at the western angles of the transverse aisle, a and on the western facade. The Cluniacs in their later buildings followed the model afforded by the principal church of t

the Order, even with a corresponding simplification in plan a and execution. Their model churches are always three aisled with single aisled choir, eastern transverse aisle and a vestibule. They carefully avoid the crypt, have a second choir with aisle and radially arranged chapels (as at S. Martin's church in Tours; volume 1, page 181), tunnel vaults with cross arches in the middle aisle and cross vaults in the side aisles. Instead of galleries, triforiums extend below the windous of the clearstory. In the construction and the arcades of the n nave prevail the pointed arch (it is already found in the arcades of the principal church at Cluny just mentioned), but the round arch remains in the windows and decorations. A peculiarity in form is shown by the Cluniac churches in architecture by the classistic treatment of the fluted Corinthian pilasters as projections from the piers, from which comes the compound pier in steps.

The chief activity of the Hirsau monks falls in the time between 1080 and 1150. Their churches are three aisled columnar basilicas with vestibule, over which a gallery opens to the interior, eastern transverse aisle and rectangular enclosed choir with two rectangular side chapels as side choirs. Two massive western choirs flank the vestibule. Occasionally instead of them is erected a crowning tower, to which are added two e eastern towers. The middle aisle is covered horizontally; the side aisles have simple cross vaults. An earnest and dignified equipment is peculiar to the monastery churches of the Hirsau monks. They restrict themselves exclusively to the round arch, employ only cushion capitals, even at first form the bases of the columns without corner leaves, and also generally omit the wall strips and arched frieze. To the Hirsau monks is it due, that the basilican scheme was again restored to its primitive form, after its general effect had been much influenced by additions and extensions of many kinds. The mother churches of the Cluniacs and Hirsauers have disappeared with few remains. In the abbey church at Vezelay in Burgundy is still presented a complete representation of its severe style.

Yet greater than of these two Orders was the part of the Cistercians, whose congregation was founded in the year 1085 at Citeaux (cistercium) in northern Burgundy, in the history of

mediaeval architecture. Their zealous, self-denying and useful activity in the domain of agricultural colonization soon a assured to them great popularity and extension, so that they finally attained to a spiritual power, to which the importance of all others gave way. Likewise for their church architecture, they established a limitation to the necessary and the useful as the supreme rule. The towers could be dispensed with; only a wooden roof turret over the crossing to receive the small bell was declared justifiable. The crypt was everywhere omitted. As a normal ground plan remained the cross-shaped basilica with relatively narrow and elongated nave, a single transverse aisle, whose transepts were extended by small chap-
30 els at the eastern side(see ground plan b c d in Fig.186) and a rectangular enclosed choir. The number of chapels was increased toward the end of the 12 th century. They are arranged as small rectangular cells around the entire choir and the eastern side of the transverse aisle, sometimes as a double aisle (Fig. 39), each of them covered by a common shed roof extending around. The German Cistercian monasteries at first still preferred the horizontal ceiling, but soon passed to vaulting, whose improvement by the introduction of the pointed arch, they utilized earliest in Germany. (The Cistercian at Bronnbach near Wertheim.a-M, founded in 1151, is the first German building with pointed vaults and an entire retaining of Romanesque forms). The interior remained almost without decoration, without galleries and triforium, without paintings on the walls and without color in the windows. For the capitals was preferred the bell form, either plain or sparingly decorated by
31 foliage. The corbel-like supports of the large rounds (Fig. 40), (indeed for reasons of economy), is an architectural peculiarity of the Cistercian churches. The clear, assured and direct technics held equal pace with structural acquisitions developed in France, in regard to the arrangement of bays of equal length, the construction of supporting arches etc. Thus the Cistercian art in the wide regions of its extension prepared the ground for the Gothic, in whose stream the individual character of its style vanished after the middle of the 13 th century. Of the numerous well preserved Cistercian abbeys,

the monastery at Maulbronn in Wurtemberg furnishes the most famous example, in regard to the equipment, indeed frequently e exceeding the original severity and modesty of the rules of t the Order.

5. Extension in the different countries and the monuments.

I. Germany, Austria and Switzerland.

German architecture produced in the Romanesque period, the best and most splendid age of the German nation, such an astonishing abundance of monuments, that we must restrict ourselves to mention only the most important. Likewise we have before us but few of these in their original condition. Most are so changed by rebuilding, that only certain architectural parts date back to the time of their origin. In the general view of the Romanesque art of Germany belong the most prominent creations of three great architectural domains:-- the Rhine provinces, the Saxon lands and Westphalia. Everywhere are reflected the racial peculiarities of the occupants in the conception a and execution of the buildings.

The Saxon provinces at first took the lead, just as in political affairs, so likewise in art. In their works is expressed a desire to adhere firmly to Carlovingian traditions and f for strict order in ground plan and structure. Most common is the normal type of the cross-shaped basilica with round choir, side apses in the cross aisle, alternation of supports in the nave and two massive western towers. To the basilicas with horizontal ceiling, double choirs, double transverse aisles a and an alternation of two columns with one pier belong the grand and epoch-maching church of S. Michael at Hildesheim (Figs. 8, 41), built in 1001-1033, later rebuilt after the old plan and dedicated in 1186, the cathedral (1122-1190), and the well preserved and richly decorated church of S. Godehard in Hildesheim (1132-1172). (Fig. 42). In simple cross form is arranged the castle or foundation church in Quedlinburg (1070-1129). Of the smaller monumennts with simple alternation of pier and column are to be mentioned the church at Gernrode, founded in the year 960, and the monastery church at Hecklingen (1117-1170), the latter as the pattern plan of the normal Saxon basilica. (Figs. 1, 2). Pure columnar basilicas are employed only by t

the monastery church at Paulinzelle,(founded 1105), yet remaining in picturesque ruins, and the canons' foundation at Haersleben (founded 1112). Pure pier basilicas are the cathedral at Bremen (about 1050), the Liebfrauen crurch at Halberstadt (begun 1135), and the beautiful foundation church at Königslutter (begun 1135), of which the choir and transverse aisle are already covered by cross vaults (without ribs). Aside from the cathedral at Brunswick (1173-1194), a vaulted pier basilica with restricted ground plan and still purely Romanesque forms, a complete vaulting was first received by the buildings of the transition style, which indeed retained the restricted system of ground plan, and likewise the round arch in the portals and windows, but otherwise introduced the pointed arch and the decorative innovations:-- the cathedral at Naumburg with double choir (middle building dedicated 1242), the cathedral at Halberstadt (1181-1220), the Liebfrauen church at Arnstadt, the cathedral at Magdeburg (begun 1209), whose structure already appears entirely Gothic, and the cathadral at Freiberg-i-S, but of which only the famous "golden portal" with t the masterly and formerly gilded statues was saved in the Gothic rebuilding. Among the Cistercian churches erected in the ancient Saxon soil is most interesting that of Riddagshausen near Brunswick, dedicated in 1278; (Fig. 39). The outer aisle of the choir is covered by a low, and the second by a high shed roof, so that the choir end shows three roofs like terraces rising above each other.

In Westphalia the buildings take a course directed toward t the simple and practical, that first of all regards the fulfilment of the nearest needs, with solid construction and without placing great value on ornamental accessories. The churches are mostly pier structures in hall form (with aisles of equal height, page 12), with cross vaults, that occur very early in the already mentioned chapel of S. Bartholomaus at Paderborn. (Page GM). The cathedrals at Paderborn and Minden are cross-shaped hall churches, the former with rectangular enclosed choir, the latter with a Gothic choir. The imposing cathedral at Soest was originally a pier basilica with a horizontal ceiling, but still received its vaults in the Romanesque period.

Among the Westphalian buildings of the transition style stand in the first place the cathedral at Osnabrück (1256-1291), a vaulted pier basilica with octagonal crossing structure, the cathedral at Münster (1225-1261), likewise a pier basilica in the restricted system with double choir, the magnificent church of S. Reinold in Dortmund (cross-shaped basilica), and among the Cistercian designs the severe monastery church at Marienfeld (1222).

The Rhine provinces, in which blessed region the Romans once developed their art and civilization, on whose soil only originated flourishing and populous cities, likewise brought Romanesque architecture to its most splendid development. Here in a people particularly favored by nature were combined an elevated spirit of a religious tendency with a civic sense of enjoying life, that pressed towards artistic activity and embodied its grand architectural ideas in works of highly monumental form and the richest equipment. From the early period date t the abbey church at Limburg-a-H (about 1034) and the foundation church at Hersfeld in Hesse (about 1040), both horizontally covered and spacious columnar basilicas, today remaining only in ruins. The best period was introduced by the chief works of Romanesque art, the great cathedrals of Spires, Mentz and Worms. They are entirely vaulted in accordance with the restricted system of the Romanesque, but were erected as horizontally covered basilicas in their first design. The cathedral of Spires precedes in time, at least in its existing form. It was erected by the emperor Heinrich IV in place of an earlier structure (built between 1030 and 1060) between 1080 and 1100 as a cross-shaped basilica with western vestibule, an unusually large nave with seven bays in the middle aisle (Figs. 4, 43), a roomy crypt as a burial place for the Salic imperial house, two domical towers (over the crossing and the vestibule), and four slender square towers in the eastern angles of the t transverse aisle (Fig. 17) with the vestibule and nave. The clarity and beauty of the proportions of its masses and the grand and spacious effect of the interior is attained by neither one of the other two cathedrals. The cross vaults were still executed without ribs on the cathedral of Spires. The rib-

ribbed vaults in the cathedral of Mentz were first added at a later time, which may be determined from the form of the piers not intended therefor. It is highly probable that this was also the case on the cathedral at Worms. The cathedral at Mentz was erected from 1081-1137 in place of an earlier structure, already existing from 778 to 1050, as a cross-shaped basilica with a shorter nave (five bays), western choir and small crypt, two massive domical towers and four smaller polygonal flanking towers.(Fig. 44). Likewise the cathedral of Worms had a precursor in a building erected from 1000-1025, but was constructed in its present form from 1171-1234. It is also arranged as a cross-shaped basilica with doubled choir, the nave with five bays, without a crypt, but having two polygonal and four round flanking towers. Its external appearance has an extremely grand and picturesque effect.

With the most prominent Romanesque buildings of the Rhine p provinces is also reckoned the Benedictine abbey church at Laach near Andernach, a cross-shaped pier basilica with western choir (1093-1156), before which is placed a"paradise"as an enclosed uncovered portico, and with six towers, in plan and structure a bold and noble work (Figs. 6, 45). The picturesque minster at Bonn also has a doubled choir. The beautiful parish churches at Andernach and Sinzig exhibit galleries over the side aisles, have round arcade arches between pointed cross a arches.

The church of S. Castor in Coblenz (1157-1201), a pier basilica with four towers, is vaulted in the restricted system. T The parish church at Boppard (about 1200) has in its middle aisle a pointed tunnel vault subdivided by cross arches. Opposite Bonn and on the other bank of the Rhine stands the beautiful church of Schwarzrheindorf (1149-1151), that affords an example of the generally common type of the castle and fortress chapel, while it exhibits two stories on the same ground area, that are connected by an opening in the ceiling. The upper story was intended for the nobles, the lower being for the servants or even a tomb chapel. In Cologne, the ancient Roman c city, several important churches originated with peculiar and the richest treatment of the choir and transepts. At S. Maria

im-Capitol (dedicated 1049), the church of the Apostles (second half of the 12 th century) and Great S. Martin (dedicated 1172), the choir plan approximates to the central system, while the arms of the cross also terminate in apses (as at the church of the Nativity in Bethlehem; see volume 1, page 162) and the side aisle extends around as the choir aisle (Fig. 46). S. Gereon appears entirely as a decagonal central building, t that was extended in 1069 by an elongated choir ending in semicircular form. The church has a splendid and spacious crypt. Likewise at the church of S. Quirin at Neuss, built after 1207, is repeated in the eastern portion the triapsal ground plan of the first mentioned churches at Cologne. Its windows exhibit peculiar forms, the fan, trefoil, and the like (Fig. 47). It is the principal work of the transition style of the lower Rhine, which was particularly accessible to such innovations. As the chief buildings of the transition style of the middle Rhine and of Hesse are to be mentioned the great cathedral at Limburg-a-L. (1213-1342; Figs. 9, 16, 37), a cross-shaped basilica with round choir ending and inner choir aisle, in which the galleries and triforiums have pointed arches and are continued above the side aisles, together with the magnificent parish church at Gelnhausen, equipped with the richest ornamental work.

In the region of the upper Rhine, the minster at Basle, erected in 1185, a vaulted basilica arranged in cross form on the restricted system with five aisles, a choir aisle and two western towers, is reckoned with the best creations of the transition style. Likewise the two principal works of the Gothic period, the minsters at Freiberg-i-B. and at Strasburg-i-E., the beginnings of the structures still belong to the Romanesque period, the transverse aisle and the eastern towers of Freiberg minster, from the first half of the 13 th century, and of Strasburg minster, the entire eastern structure, begun in 1179 and finished about the middle of the 13 th century, with the double portal represented in Fig. 48.

In Alsace the Romanesque buildings exhibit the German traits, much permeated by French and Italian influences, with an earnest and heavy character. The church of Ss. Peter and Paul at

Rosheim, dedicated in 1049 but restored in the 12 th century, strongly recalls Tuscan works by its western facade without towers but subdivided in round arched galleries. Otherwise the Alsatian churches are mostly cross-shaped pier basilicas with a crossing tower, two square western towers, between which lies a gabled portico, frequently with rectangular choir and luxuriant ornamentation interwoven with fanciful animal a and human forms. The abbey church S. Murbach (1216) exceptionally places two towers over the two arms of the transverse aisle. The normal Alsatian type is presented by the earnest abbey church of Maursmünster, the well preserved church of S. F Giles at Schlettstadt, and the richly treated church at Gebweiler, in which the transition style appeared quite early (it was begun in 1082).

In Swabia and Bavaria, Romanesque buildings permit the recognition of an independent style-forming power, less in the creation of the interior than in the decoration. In the churches outside the influence of the Hirsau and Cistercian schools of architecture the transverse aisle was frequently omitted. On the contrary men liked to place two side choirs beside the main choir and emphasized the eastern side by the towers erected there. In the ornamentation occurs a luxuriant though noble expression of forms in a richness rivaling the Barocco conception with wonderful animal and human figures, which are perhaps to be regarded as profound symbols. The ceilings remain mostly horizontal; only at a later time was vaulting decided upon. The cathedral at Augsburg, a pier basilica with double choir, a western transverse aisle and two eastern towers, dates from the first half of the 11 th century, but was later much rebuilt. The cathedral at Freising (1160-1205) is famous for its its crypt adorned by fanciful sculptures. Regensburg is the richest city of south Germany in Romanesque churches. Its most important monuments are:-- S. Emmeran (1020-1052), a plan with double choir, double crypt, and a magnificent cloister lying beside the church, the upper minster, and the Schotten church (S. Jacob), derived from the Hirsau school and well known for its rich portal. (Fig. 49). The Swabian monuments are distinguished by great richness of ornament. In Hirsau w

was erected in 1059-1071 the church of S. Aurelius, and beside
it in 1082-1091 the church of S. Peter as the mother church of
the Hirsau congregation. These were followed by the abbey ch-
urch at Alpirsbach (founded 1095) and the foundation church at
Ellwangen, begun 1146 and completed 1233, influenced by the c
cathedral at Worms, the first basilica of Swabia, that was com-
pletely vaulted. To the transition style belongs the pretty
chapel of Walderich at Murrhardt (Fig. 50). The minster of
Schaffhausen likewise exhibits the Hirsau scheme, and also the
minster at Constance (1054-1089), later transformed entirely
into Gothic. The Cistercians had in Maulbronn in Swabia, in
Bronnbach near Wertheim and Ebrach in Franconia their most im-
portant settlements in south Germany. The plan of the monast-
ery of Maulbronn is more fully described in the second Chapter
(Fig. 186). Of the many churches on the island of Reichenau
belonging to the early period, the minster at Mittelzell is a
stately pier basilica, the smaller church of Oberzell (Fig.3)
being a columnar basilica. In the parish church at Reichenha-
ll and the church on the Petersburg near Dachau occur the alt-
ernation of supports. In southern Bavaria are also to be men-
tioned some hall structures, among them being the Benedictine
church at Prül near Regensburg, dedicated 1110, one of the ol-
dest completely vaulted churches of Bavaria. To the transiti-
on period is referred the older portion of S. Sebald in Nurem-
berg, dating from the first half of the 13 th century. The
most splendid creation of Romanesque art in Bavaria and in Mid-
dle Germany is the cathedral at Bamberg, whose first building
was dedicated in 1012. In its place and after a fire in the
year 1081 was erected a second building, dedicated in 1111.
The existing third structure (Fig. 51) originated between 1192
and 1237 as a cross-shaped vaulted basilica with double choir,
on which may be recognized manifold influences of Rhenish buil-
dings. In Switzerland, next to the minster at Basle, the most
important churches are the great minster and the Frauen minst-
er at Zurich, simple and severe buildings with rectangular ch-
oirs.

The Austrian provinces adhere in church architecture to the
south German type of plan without transverse aisle, with three

eastern apses and two facade towers. In the richly treated c columnar portals and the architectural and ornamental treatment is frequently expressed the influence of the works of upper Italy. In the church of S. peter at Salzburg (1131) was introduced by Saxon Augustinian canons the alternation of supports (of two columns between two piers), that also found imitation in other structures. The beautiful monastery church at Seckau (Steiermark), built 1142-1195, appears to be influenced by the Hirsau school (see Fig. 52);the rich ribbed vaults were built later). As a chief work of Austrian-Romanesque art is to be designated the noble cathedral at Gurk, a stately three aisled pier basilica with transverse aisle, that does not project beyond the side aisles, and a splendid crypt, whose cross vaults rest on a hundred marble columns. To the transition style belong the abbey churches at Trebitsch and Tischnowitz, exhibiting a rich decorative magnificence, and the Cistercian monasteries of Heiligenkreutz, Lilienfeld and Zwetl.

In the north German lowlands, in the lack of a more suitable material, the earliest Romanesque churches were built of fragments of the erratic boulders found scattered there (foundling stones), partly also in imported tufa (like the central structure of the church of S. Michaelis at Schleswig (about 1100) or in sandstone (as the cathedral at Haveljerg; 946-1170). About the middle of the 12 th century and under influences from Holland and upper Italy, men advanced to the brick construction already described on page 16, for which by a proper treatment of the material were found the most suitable art forms, so far as they were not already known from foreign models.From upper Italy was brought the trapezoidal capital (Fig. 23 B) among other elementary forms, which however retained an abacus of sandstone. (Its peculiar form must otherwise have resulted of itself from the direct transition of the circular shape to the square slab). The need of other ornamentation was satisfied by friezes with consoles, interlaced round arches, bricks set diagonally (Romanesque dentils) and slightly projecting m moulded bricks, with the decorative treatment of the facades by strongly accented alternation of joints. Among the monuments stands in the first rank the monastery church at Jerichow,

built 1147-1152 (near Tangermunde), a three aisled, cross-shaped columnar basilica with horizontal ceiling (Fig. 53); further the great cathedral at Ratzeburg, begun in 1178 as a regular cross-shaped pier basilica with rectangular side choirs, v vaulted on the restricted system without diagonal ribs, and t the cathedral at Lübeck, founded in 1173 as a Romanesque cross basilica, later transformed into a Gothic hall church. The m monastery churches at Diesdorf (1161-1188) and at Arendsee are cross-shaped vaulted basilicas in the commencing transition s style, whose latest climax is represented by the beautiful Brandenburg Cistercian churches at Chorin and at Lehmin in 1182-1262. (Fig. 15).

II. Scandinavia.

In Scandinavian lands Christianity acquired full control first in the second half of the 12 th century. The churches of the southern architectural domain, in Denmark, on Zealand, the island of Gothland in southern Sweden and Norway, were chiefly dependent on German stone construction; thus the cathedral at Ribe (Jutland), begun in 1176 and treated in the Rhenish style, as well as the cathedral at Roskilde (Zealand), built after 1191 and following French and German influences, and the stately cathedral at Lund (southern Sweden), dedicated 1145 but only completed about 1200, a vaulted normal basilica of the German kind with transverse aisle, two facade towers and peculiar northern ornamentation, that perhaps is permeated by Byzantine=Grecian forms. (Fig. 54). On the island of Gothland the hall type is at home. It is represented by the churches at Dalham, dedicated 1209, and at Wisby, by S. Clemens, S. Brotton and t the cathedral. (Dedicated 1225). On Bornholm, in southern Sweden and Jutland remain still a considerable number of round s stone churches, consisting of a circular central building in several stories with middle pier, annular vaults and an added choir. They refer back to the prehistoric German round castles and were fortified for protection from the piratical incursions of the Vikings. * In Norway's stone architecture the English-Norman influence predominates, to which refer the heavy round piers, the folded capitals, and the zigzag ornaments of the archivolts. (Fig. 78). The cathedral at Stavanger (1128-

1150) is a basilica with horizontal ceiling. Of the cathedral at Drontheim, the Norwegian national sanctuary, only the transverse aisle and the sacristy still belong to the Romanesque p period.

** The fortress-like enclosure of most monasteries has already been referred to in volume 1, page 183. Likewise simple v village churches in the times frequently agatated by wars were often equipped for defense by a construction of the tower dominating the entrance, making it capable of defense. Even the cemetery surrounding the church is frequently included within this kind of fortification.*

A separate place is taken in Scandinavian art by the wooden churches, about 80 of which are still preserved in Norway and Sweden, the most important being at Urnaes (about 1090), at Borgund (first half of the 12 th century), Hitterdal (end of 12 th century), at Gol (now transferred to Oskarshall near Christiana) and at Wang (Vang), this transported in 1844 to Brückenberg in the Silesian Erz mountains. In them is preserved the primitive German and Slavic mode of constructionl developed into a style corresponding to the material and the climatic conditions. Its basal form appears to have been derived from the northern house and temple (volume 1, page 168), but it very early received influences from the basilican scheme and stone architecturel which already appear in the forms of capitals in the oldest church at Urnaes.(Fig. 55). The ground plan (Fig. 56) consists of a nearly square principal room carried up high and enclosed by wooden trunks like masts, around which a portico extends on all four sides, that represents the plan of the side aisles. Opposite the main entrance lies the small square choir chapel, generally ending in an apse. Around this inner room runs a low gallery, the "svalegang". This is treated as a dwarf gallery with balustrade and is marked by portal structures at the three entrances. The walls are constructed of h horizontal timbers or of vertical posts set side by side, on in half timber work combining both systems. In Norway and the western provinces the vertical method predominates, but in Sweden and eastern Europe the horizontal system. In the interior the rafters remain visible or a horizontal ceiling is arr-

arranged, or even a vault-like sheathing of boards is constructed, that recalls the ogee section of the ship. The entire w woodwork frequently reminds one of the wooden construction common in ship-building. The exterior is of very picturesque form. Against the middle nucleus structure, very high and covered by a gable roof with roof turret, first leaves the shed roof over the inner gallery (the side aisles) and the choir, further below being the continuous roof of the svalegang, the shed roofs over the entrances being interrupted by small gables, the whole uncommonly adapted to throw off and separate the masses of snow. (Fig. 55). Great interest is afforded by ornaments incised in special parts of the structure, especially in the portal jambs and lintels, in which the ancient German animal and band interlacings perform real orgies in an inexhaustible wealth of invention. (Fig. 57).

III. France.

Still more sharply than in Germany, in the different provinces of France are expressed the national diversities of the p people in Romanesque architecture. The southern half was once a Roman province. There was developed indeed a rich, varied and expressive art. But it was directly based on the antique, whose effects were frequently strengthened by direct currents from the East, and so made but little of its own, that we have so far designated as Romanesque in the narrower sense. The h heriditary population even there was affected by German blood only in slight measure. The primary conditions of the development of art in northern France were different. There the Celts and Normans formed the predominant portion of the population, and thus also there the Romanesque art, permeated by the German spirit, found a fertile soil. The entire course of Romanesque art in France, as in Germany, is characterized by the method of construction of the ceiling, and particularly by the vaulted construction, that we have already described in c connection with the general treatment of the ground plan and the interior. (Page 13).

In southern France are to be mentioned only a few basilicas with horizontal ceilings:-- the ancient and venerable church of S. Martin in Tours (see volume 1, pages 176, 181), a cross

basilica with five aisles, restored in 997, the abbey church of Cluny, dedicated 981 (page 28), two epoch-making creations, but which have almost entirely disappeared, and S. Aphrodise at Beziers, this influenced by the facade of the cathedral at Pisa. The impulse toward vaulting set in with the tunnel vaulted hall church of a single aisle (see page 13), among which the cathedral of Notre Dame at Avignon (about the end of the 11 th century) and the grand and spacious cathedral of Toulouse, commenced at the beginning of the 13 th century, but not completed in the pure style, represent the most important works. Of the domed churches of Aquitania (see page 13), the cross-shaped abbey church of Fontevrault, single aisled and to be referred to the second half of the 12 th century, and the cathedral of Angouleme are to be emphasized. (Fig. 58). The influence of Byzantine works is there unmistakeable. The mighty church of S. Front at Perigueux (after 1122) entirely passes over to the Byzantine normal scheme with five domes already adopted by S. Marco in Venice.

More commonly than single aisled churches are found in southern France the tunnel vaulted hall churches. S. Honorat at L Lerins (Fig. 59) is covered by three parallel semicircular tunnel vaults in the side aisles, but in the middle aisle are pointed arches and tunnel vaults. The churches at Grandson in Switzerland and at Fontfroide exhibit half tunnel vaults in t the side aisles; in the middle aisle the former still has a round arch, but the latter already a pointed arch as the vaulting line. In the church of S. Savin the side aisles already have cross vaults and likewise in Notre Dame la Grande at Poitiers (Fig. 60), famous for its peculiar facade. The tsnnel vaulted hall churches with galleries reach a splendid development in Auvergne in Notre Dame du Port at Clement-Ferrand, a cross-shaped and three aisled plan with columnar aisle and circle of chapels, cross vaults in the lower and half tunnel vaults in the upper side aisles, and a massively treated dome over the crossing, also further in S. Paul at Issoire (Fig. 61), as well as in higher degree after the same arrangement, in the colossal church of S. Sernin (Saturninus) at Toulouse (from t the 12 th century), yet built with five aisled nave and three aisled transepts.

The tunnel vaulted basilicas of Provence are best represented by S. Paul in Trois-Chateaux and S. Trophime in Arles, both dating from the 12 th century, the former with round arched, and the latter with pointed arched tunnel vaults. S. Trophime in Arles is well known by the beautiful portal, richly adorned by sculptures, that we judge to be the work of an early Renaissance. The church of S. Gilles (begun 1116) is worthy of consideration for the early occurrence of ribbed vaults above the crypt, as well as by its beautiful portal, that like that of S. Trophime is treated with Corinthian columns entirely in the c classical sense. In Burgundy, the later abbey church of Cluny, built 1089-1095, was destroyed by the French revolution (page 28), but was of standard importance. It was followed by the cathedrals of Autun, Vienne and Lyons. In the cathedral of Longres and the abbey church of Vezelay in northern Burgundy (page 29), the tunnel vaults were also supplanted by cross vaults. Likewise the mother church of the Cistercians at Citeaux no longer exists. A correct representation of its construction (page 29) is given to us by the abbey church at Pontigny, erected about 1150, but whose rectangularly enclosed choir was replaced about 1180 by a polygonal one, with aisle and circle of chapels. With this choir plan, the ribbed cross vaults developed to full maturity, and the carefully graduated treatment of the piers in accordance with the system of ribs, this c church bears all the marks of the latest transition style.

Everywhere in northern France prevails the basilican type. Hall churches and single aisled churches only occasionally occur, at least in the larger designs. The horizontal ceiling was retained until in the last quarter of the 12 th century. The great church of S. Remy at Rheims(1005-1049) with five aisled nave, three aisled transepts, choir aisle and circle of chapels, still leaves the framework of the roof open to view. Horizontal ceilings also had the abbey church of Jumieges, now remaining only as an expressive ruin, with piers and columns alternating after the Saxon manner, and also the great abbey churches of S. Trinite and S. Etienne at Caen, which however received cross vaults later, about 1200.

About 1050 the great architectural activity of the Normans

commenced. Their normal churches were cross-shaped pier basilicas on the restricted system, the side aisles continued beside the choir square to the beginning of the semicircular apse of the choir and then closed square. The side aisles have galleries, and above these extended other galleries, in which are the windows. From the piers project half columns with capitals like corinthian in earnest and plain forms. In the cornices are especially favored small consoles with heads of animals etc. Three towers, one over the crossing with a high pyramidal roof and two on the facade, animate the exterior of the architectural group. Generally on the soil of northern France, Lombard are crossed with German influences. A rapid advance is made by vaulted construction. Already the church of S. George at Boscherville, erected between 1154 and 1157, has in t the middle aisle a completely developed system of ribbed cross vaults. In S. Etienne at Beauvais (about 1125) the middle aisle is covered by round arched ribbed cross vaults. The church at Airaines (about 1130) already introduces the pointed form for the transverse arches. The abbey church of S. Germer near Beauvais (about 1145) exclusively employs the pointed arch in the vaults and the openings in the walls. They might already be assigned to the succeeding art period; except that the buttress system (see page 79) is still undeveloped, since it is concealed beneath the roof. But in the later monuments originating after 1150 was perfected that extraordinary transformation in construction and forms, with which the new system of the Gothic commences.

IV. Italy.

The great movement in architectural history of the Romanesque period in the German lands of middle and northern Europe w was not transplanted in its entire strength beyond the Alps. Italy was already so richly supplied with church buildings, t that no such large field remained for the activity of mediaeval art. Likewise the northern races affected Italian art in very unequal measure according to the mixture of races, most successfully on the soil of upper Italy, already prepared by the Lombards, and in the former Norman kingdom of the Italian South. Everywhere the German natural spirit, accustomed to

the simple and natural and inclined toward spiritual depth, b brought new life into the petrified, formal antique with a Byzantine flavor and combined with Early Christian art. Its joy in treatment and abundance of forms combined with the classical tendency peculiar to the Italian conception of art into an extremely fortunate harmony, just as on the other hand the freedom and light spaciousness of Italian buildings reacted on the connected strength of the massive and dark structures of the northland in the most favorable manner.

In most cases the churches followed the basilican scheme with or without galleries, yet always with a free treatment of the restricted system. The ancient T-form of ground plan (see volume 1, page 176) was not always extended to the cross-form. The transverse aisle frequently remained unmarked; over the crossing rose a polygonal dome. The bell tower stood as earlier beside the building without organic connection therewith. (Fig. 62). The Tuscan churches lacked the crypt. In Lombardy and lower Italy it was developed in the richest manner. As supports columns and piers continued in use, sometimes also in alternation. For vaulting, the cross vault was almost exclusively employed, with the exception of some churches of upper Italy influenced by France. Yet horizontal ceilings and the visible framework of the roof also remain in favor as previously. On the facades the horizontal subdivision expressed in a antique buildings reacts in the strongly emphasized main cornices. The preference for columnar construction led to an abundant use of triforiums. The surfaces of facades appearing in great width by the lack of towers was frequently animated picturesquely by facings of light and dark colored band courses and friezes. (Fig. 18).

Besides the basilican, the hall type occurred occasionally. The central plans are found in community churches chiefly in the Byzantine provinces of the South and in Venice (see volume 1, page 194); but simple circular or polygonal buildings are quite generally scattered over all Italy, occurring as baptisteries erected near the principal churches.

Lombardy preceded the North in time in the rise of certain forms of treatment characteristic of Romanesque art. Wall strips and arched friezes were already represented in the art of

Ravenna (volume 1, page 157), and blind arcades on small columns with consoles among the Lombards (volume 1, page 171). But in reference to the covering of the middle aisle with cross v vaults, so important to the development of the Romanesque style, the precedence is not important. It was first adopted for the church of S. Ambrogio in Milan,(Fig. 63), newly built in 1046-1071 over a three aisled ground plan without transverse aisle and with galleries over the side aisles, the middle aisle strongly elevated but without windows in the clearstory, t the groin lines of the main vaults enlarged by diagonal ribs in brickwork, which rise from round projections of the piers shaped like angle columns. Before the western facade opening in loggias lies a forecourt enclosed by arched porticos on piers, whose existing structure dates from the beginning of the 12 th century. (After 1117). The fanciful and almost fearful animal figures in the ornamentation indicate a peculiarity of Lombard sgulpture. (Volume 1,Fig. 209). The system of S. Ambrogio was carried to a happier solution in S. Michele in Pavia toward the end of the 11 th century, when the middle aisle was extended so high above the side aisles, that windows could be inserted in the clearstory walls. The most perfect creation of Lombard-Romanesque art is the cathedral at Parma (dedicated 1106), where the transverse aisle and choir are arranged according to the crossing square, as in Germany. Likewise the cathedral of Trient (after 1212) follows this design, yet with rejection of the restricted system, and the arrangement of rectangular bays in the middle aisle, that also reappears in the church of Ss. Peter and Paul at Bologna, a structure with alternation of the supports. The cathedral of Piacenza substantially adheres to the school of Pisa (see page 51). To the basilicas with horizontal ceilings also originally belonged the cathedral of Modena (begun 1099; Fig. 62), a structure with alternating supports, in which open round arches are turned between the piers, walled above to receive the ceiling; in the 1 12 th century the bays thus formed were afterwards covered by cross vaults. Artistically more important is the noble church of S. Zeno in Verona, a basilica with crypt and alternation of the supports, in which the system of open arches with horizon-

horizontal ceiling yetrremains in its original condition. The portal dating from 1139 (Fig. 65) has rich sculptured decorations and a door entirely covered by Romanesque reliefs in bronze. On S. Zeno, as well as on the cathedral of Modena, the vertical subdivision expressed by wall strips and half columns is striking, as well as the splendid wheel window in the gable of the middle aisle and over the main portal.

In the western provinces of upper Italy, at first belonging to France, are also commonly found (also occasionally in the remainder of upper Italy and especially in Milan) tunnel vaulted hall churches, similar to those of Provence. But in the east, in Venice, all Romanesque architecture stands under the overpowering influence of that magnificent triumph of Byzantine-mediaeval art celebrated in S. Marco. (See volume 1,page 194).

In Tuscany all Romanesque architecture developed under the strongest influence of the antique. The classical conceptions and treatment of the architectural masses here appear on the soil, once occupied by the ancient Etruscans, with a certainty and clarity, that must be striking in this portion of the country, in which so few remains exist from antiquity, and that c can only be explained by the particular inclination of the people and their animated relations with Rome, where the antique=Early Christian spirit maintained itself alive until in the beginning of the second thousand years. The old basilican style with horizontal ceiling or visible framework of the roof passed into Romanesque art. But the exterior received a rich and splendid architectural treatment, in which the classical columnar and arcade construction came into its full rights, and the colored animation of the surfaces had wide scope. Nearest the antique stood the magnificent buildings of Florence:- S. Miniato (11 th century), the nobly located hill church at the southeast above the city, a three aisled nave (without transverse aisle) with alternating supports, open arches, visible framework of the roof and a facade, that is interesting as classical; the baptistery (12 th century) on the cathedral Place, an octagonal structure, containing an undivided interior vaulted by a dome and a facade with entirely antique treatment. The chief creations of Tuscan architecture stand in Pisa. They t

there combine in a grand architectural production, which produces in every one an unforgettable and evin overpowering impression, who visits the quiet and broad Place at the northwest end of the city. On the middle stands the mighty cathedral, begun in 1063 by the architects Busketus and Rainaldus and completed in 1118. There clearly appears already in its external appearance the Latin cross, formed by the intersection of a f five aisled nave with the three aisled strongly projecting transepts. The nave terminates at the east in a semicircular choir apse; the cross arms end in smaller apses. The middle aisle extends above the shed roofs at the sides; the crossing is crowned by an oval dome. Blind arcades and pilasters subdivide the external surfaces. But the western facade is entirely subdivided into arched galleries in several stories, in the manner characteristic of the Tuscan school, and even extending beneath the inclined edges of the roofs. (Fig. 66). On the interior 68 granite columns, partly with antique capitals, brought from afar, support the walls, on which rests the wooden ceiling of the middle aisle, while the side aisles are provided with Romanesque cross vaults. The internal walls are covered by white and dark green marbles. The entire interior makes a unified and solemn impression, airy and elegant, light in c comparison to northern buildings. Near the main apse rises t the campanile (Fig. 67), the famous leaning tower , erected a about 1174 by Wilhelm of Innsbruck and the Pisan Bonannus, * that harmonizes finely with the cathedral structure by its columnar arcades surrounding it in six stories. Opposite the western facade of the cathedral stands the baptistery, executed in the same style (the superposed Gothic decorative gables are later additions), built 1153 by Diotosalvi as a great circular central building (100.1 ft. diameter), the interior with outer aisle in two stories, covered by a steep and almost conical d dome. Yet other churches in Pisa exhibit the same treatment of the facade as the cathedral, also S. Michele in Lucca (1160-1239) and S. Giovanni-f-c in Pistoja. S. Andrea there (Fig. 18), a basilica from the 12 th century with a narrow middle a-aisle adopted Florentine influences in addition to Pisan. Even as far as Dalmatia (cathedral in Zara, begun 1247), the Pisan school exerted its influence. A separate place is taken by

the cathedral at Ancona (Fig. 70), built 1128-1189. Caused by the location of the city on the Adriatic Sea, Byzantine influences affected it. The ground plan forms a Greek cross, consisting of a three aisled nave, three aisled transepts of the same length and with apses at their ends. The crossing is crowned by a dome with 12 sides. The Ravenna-Byzantine columns indeed date from an earlier building.

** The oblique position was produced by settlements (resulting from the yielding of the ground at one side), which occurred during the construction and could no longer be remedied.*

In Rome and the surrounding Umbrian province the Romanesque style could obtain no firm foothold. Architecture adhered to the Antique-Early-Christian basilican scheme with visible roof framework or horizontal ceiling and firmly to Roman architecture, busying itself less in the establishment of new churches, than in the rebuilding and maintenance of earlier works, and their rich architectural decoration. Besides S. Maria in Trastavere in Rome (about 1139), no remarkable rebuilding occurred. S. Lorenzo-f-l-M (volume 1, page 159) received the front church at the beginning of the 13 th century; the structure of the 5 th century remained as choir. Among the churches outside R Rome are to be mentioned two beautiful works in Toscanella (near Viterbo), S. Pietro (Fig. 68), built 1039-1090, and S. Maria (1050-1206), both three aisled with noble treatment and with a rich facade.

But in one respect the middle ages fertilized the antique to new life in the ornamental works in stone on altars, pulpits, choir enclosures, and particularly in cloister courts. By the artist family of the Cosmati, whose activity falls in the period from 1090 to 1332, was developed an individual, finely conceived and very charming mode of ornamentation, that chiefly consisted in the decoration of architectural members taken from the antique with mosaics of bits of brightly colored marbles. What these head masters of mosaic decorative art have magically produced in noble form and splendid color in the Roman cloisters of the monastery near S. Paolo-f-l-M (1220-1241), e erected by Petrus of Capua and Master Petrus, and S. Giovanni in Laterano, built in 1222-1230 by the two Vassaletus, father

and son (Figs. 21, 59), belongs to the most beautiful and most harmonious of all, that mediaeval art has brought forth anywhere.

Until the middle of the 11 th century, Italy was under Byzantine rule, and later till the middle of the GC th century, under that of the Normans and Hohenstaufens. German traits are there combined with Byzantine , and also in part with Saracenic traditions. The churches are throughout basilicas with transverse aisle, that the apses adjoin directly, middle aisle with horizontal ceiling and cross vaults in the side aisles a The cathedral of Salerno (begun 1077) was later transformed i into a pier design with tunnel vaults. Completely modernized are the neighboring cathedrals of Amalfi and Ravello. On them the stilted roud arches and the intersecting blind arcades indicate the influence of Sicilian architecture. Stronger appears the German basal element in the east of the Norman kingdom of lower Italy, in the country of Apulia. The cathedrals of Bari (begun 1234) and of Troja (1093-1119) are columnar basilicas. At the cathedral of Trani each two columns are coupled. A peculiarity of the churches consisted in the largely planned and richly equipped crypt. In the cathedral of Trani the crypt extends beneath the entire upper church; in S. Maria at Foggia it is completely developed as a lower church. With few exceptions (for example the cathedral of Troja treatmed in an antique sense), the facades here by the subdivision with wall s strips, arched friezes, triforiums and the like, frequently r recall the buildings of upper Italy and the north; in several cases towers are even included in the structures in permanent connection with the facade. In the interior fully appears the love of splendor native to the South. Here chiefly the marble workers (marmoraii) called by Desiderius of Mt. Cassino, again revived the antique opus sectile (volume 1, page 148) and brought it to high perfection. Their style of decoration enjoyed such approbation, that it found the most extensive employment in lower Italy, in Sicily, and in Rome as far as Tuscany. *

** The technical methods of the marble workers differed from those of the Cosmati, in that they cut the different figures of the ornaments (bands, foliage, palm leaves etc.) out of thin marble slabs and cemented them in the corresponding recesses*

of the architectural members to be decorated, while by the Cosmati the figures were composed of very small bits of marble a arranged according to the general surface patterns.

In Sicily, that peculiar island so very richly equipped by nature, which was successively ruled by Greeks, Romans, Goths, Byzantines and Saracens, western art in the 12 th century and under the blessed rule of the Norman princes passed through a wonderful climax. In an extremely fortunate way were combined these traditions od the earlier forms of civilization in order to give to architecture their best, from the Greeks the spirit thinking for beauty, that would create the art work for itself, from the Romans the practical ground plan according to the model of the basilica with horizontal ceiling, from the Byzantines the advantages of the central plan, dome construction, and the costly facing with brightly colored marble slabs and splendid mosaics, from the Saracens the luxuriant and purely decorative use of arcade construction, the stalactite pendentive ((see volume 1, page 209), and the splendor of color poured out over the entire interior. The Normans then completed the architectural creations so produced in their sense by the addition of towers in their facades and their monumental architectural treatment. The magnificent Martorana at Palermo (Fig. 71) has already been mentioned (see volume 1, page 194) as a purely Byzantine church; nearly allied to it is S. Giovanni d'Eremeti (founded 1132) as a church with five domes, yet with a substantial approximation to the western basilica, by the arrangement of the building as a nave with transverse aisle and three apses. The palative chapel constructed in the royal palace at Palermo, famous for its strong interior (1129-1140), is a three aisled columnar basilica with a high dome over the crossing. The pure basilican type with horizontal ceiling is represented by the cathedral at Cefalu, dating from the first half of the 12 th century, whose western facade with vestibule is flanked by two massive and entirely Romanesque towers, by the cathedral of Palermo (1169-1185), but of which only the crypt, the internal columns, the choir apse and the detached double tower, now belong to the Romanesque structure, and by the cathedral of Monreale (2274-1189), a three aisled cross basilica with

56 western vestibule between two towers and a richly decorated portal, the best preserved and most important monument of the Sibilian style. The choir apse, as on the cathedral of Palermo, here exhibits the characteristic blind arcades with the arches intersecting each other.(Fig. 72). By the extremely rich mosaics of the interior is a grand show piece of genuine southern cheerfulness and fabulous splendor produced. Near the cathedral also lies that picturesque cloister court known to the world (1200-1221) with coupled columns and pointed arcades, n not only the largest, but also by far the most important of a all cloisters in Italy by the magnificence of the shafts of t the columns inlaid with mosaics and the beauty of the sculptured decoration of their capitals.

V. Spain and Portugal.

After the founding of the Spanish Mark (province) by Gharlemagne, Christian Visigothic princes penetrated beyond the Pyrenees, and after hard contests with the Moors (see volume 1, pages 203, 208) founded the Christian kingdoms of Leon, Castile, Navarre and Arragon, which comprised nearly all the northern half of the peninsula , and in part combined together. W With the rise of these kingdoms, the blooming of chivalry, the complete expulsion of the Moors from the north and their retirement toward Granada (about 1250), Spain entered upon a national advance, which was likewise expressed in the art. Indeed this was not brought to a free and permanent development. As in the time before the middle ages, also in the Romanesque period was it dependent on foreign influences, particularly in great measure from the adjacent southern France, also partly on Lombard, German and Moorish art forms, whose effects were sometimes recognized in the general design and construction, sometimes in the architectural treatment and ornamentation, a according to the relations of the master, of the architect, a and of the executing artists.

Still entirely dependent on Moorish art stands the church of S. Maria la Blanca in Toledo.(Fig. 73). The interesting building is arranged in five aisles. The four arcades dividing t the interior lengthwise rest on octagonal plastered brick piers with remarkable capitals ornamented by beaded bands, from which rise horseshoe arches.

The Romanesque churches as a rule are based on the form of the Latin cross as a three aisled and not very long nave with transverse aisle and choir. This consists either of three ((seldom five) axes lying on the axes of the aisles or of one apse with a choir aisle, formed by continuing the side aisle around the middle choir and its extension by a radiating circle of chapels. Peculiarities differing from this general scheme are only shown by the Spanish churches by retaining the e external arched portico along the sides (volume 1, page 172), by the insertion of a high choir for priests in the middle aisle, and a particularly rich treatment of the crossing tower. (Cimborio or crocero). In regard to the structure, three types are represented:-- the simple hall churches, the hall churches with galleries, and the vaulted basilicas. The horizontal wooden ceiling is found in but a few churches. (S. Millan and S. Lorenzo in Segovia). Already the oldest Romanesque buildings were covered by tunnel vaults in the middle and side aisles, where also half tunnel vaults found employment in the side aisles as in southern France. Later came the subdivision by transverse arches, then the covering of the bays by cross vaults, first in the side aisles and then in the middle aisles, the ribbed construction finally finding admission in bold development with particular prominence of the ribs by means of attached stars, lozenge ornaments, rosettes and the like. To the tunnel vaulted hall churches with choir square and one apse belongs S. Maria at Corunna, to those with galleries the great pilgrimage church of S. Jago (Santiago) de Compostella, completed 1188, with three aisled nave and transepts, the latter projecting far beyond the side aisles, choir aisle with c circle of chapels, and vestibule with a great porch most richly adorned by statues and sculptured ornamental work. The similarly arranged church of S. Isidoro at Leon (dedicated 1149) already employed cross vaults for the side aisles. In the 12 th and 13 th centuries originated some cross vaalted basilicas as important monuments with energetically subdivided piers and developed vaulted construction, among which as a chief work is the (old) cathedral of Salamanca (after 1120) with transverse aisle (Fig. 74), triapsal choir and very rich crossing tower,

that rises with sixteen sides in two stories, flanked by four round turrets. In a similar way the foundation church of Toro is crowned, in whose massive domed tower numerous Moorish forms found acceptance. The beautifully located cross-shaped church of S. Vicente at Avila with three apses has a broadly developed western facade.with two low towers and an arcade portico between them, and a very richly sculptured double portal. (Fig. 75). Expressed northern influences are shown by the pier and vault construction of the vast cathedral of Tarragona, a cross-shaped basilica with five apses; it first originated in the 13 th century and already characterized in the cross ribs and pointed arches the last stage of the development of the Spanish Romanesque style.

Separate places are also occupied on the Pyreneean peninsula by the Cistercian churches on account of their rectangular choir and rectangular side chapels, as for example Las Huelgas near Burgos (1180-1182),and by the central designs of the Christian knights (Templars), among which is to be named in the first rank La Vera Cruz near Segovia (1150), a polygonal structure of twelve sides with three apses and square bell tower. (Fig. 76). To the finest show pieces of late Romanesque art belong also some cloisters, as for example that of S. Pablo at Barcelona, on which Moorish foiled arches and ornamental motives are fused with Romanesque decorative forms into a very charming style of ornamentation. *

* *Also see Fig. 86.*

Portugal first obtained its political indeoendence in the y year 1139, but in its art continued in entire dependence on S Spain and western France. As its most important monuments still dating from the Romanesque period are:-- the ancient cathedral of Coimbra, dating from the middle of the 12 th century, a three aisled and tunnel vaulted pier basilica ending in three apses and with battlemented external walls extending high above the roof, so that it makes the impression of a fortress. The Templars' church at Thomar, built in 1162, in which around an octagonal two story nucleus structure extends an aisle of equal height with a tunnel vault and enclosed in a polygon of sixteen sides, and the three aisled hall church of the Cister-

Cistercians at Alcobaca (1148-1222), that indeed shows the usual rectangular chapels on the east side of the transverse aisle, but terminates with a polygonal choir aisle lying behind these, that already exhibits the basal traits of Gothic in its pointed arches and vaulted construction.

VI. England.

In the year 1066 the Norman duke William the Conqueror with 60,000 soldiers from northern France undertook his great campaign into England, conquered the Anglo-Saxon king Harold near Hastings, took possession of his kingdom and divided the land among the Norman nobility, while the native population sank into the position of subjugated citizens and peasants. Thereby the architecture of the Normans found admission into England, but there experienced changes of many kinds under the reaction of the native style of architecture and with regard to o conditions otherwise changed.

The previously common basilican scheme with alternating supports, galleries and strongly developed crossing tower (see volume 1, page 175) was also retained for the future. In order to provide space for the clergy, greatly increased by the flocking of monks from the continent, men gave the choir an u unusual length (so that it appears like a continuation of the nave beyond the transverse aisle) with a rectangular ending as a rule, and without a group of chapels. (Fig. 77). The transverse aisle was therefore transferred to nearly the middle of the likewise very much elongated nave. It was arranged with strongly projecting transepts, generally enlarged toward the choir by a side aisle, in order to there receive chapels for establishing side altars as in the Cistercian chapels. Frequently these aisles are arranged in the transepts. Aside from the otherwise determining influence of the Cluniacs, the crypts were not omitted.

The structure (Figs. 78, 81) begins with unusually thick walls and heavy piers, subdivided after the Norman custom, or p particularly for small churches, with strikingly stumpy round piers laid up in courses of small stones, whose form recalls old Saxon prototypes. The openings to the galleries approximated the character of triforiums by the insertion of a middle

column with arches, and which extend above them in the great cathedrals. In the capitals almost exclusively prevails the cushion type in the change to the scolloped or folded capital (Fig. 79), so characteristic of English art. Heavy rounds with frets and zigzag bands, that are repeated to superfluity, enclose the arches. (Fig. 84). Slender half columns rise from the piers but remain without structural importance, since they support no stone vaults. Only the side aisles are covered by cross or sometimes by half tunnel vaults, the galleries also with wooden construction. But although their pier forms indicate vaulted construction, the English churches all have horizontal wooden ceilings (with the exception of the cathedral of Durham), which are often splendidly painted and gilded. The portals mostly open in a full semicircle, more rarely with a quite depressed pointed arch; the tympanum then disappears. The external impression is dominated by the massive crossing tower, that terminates without spire and in a horizontal series of battlements. If western towers were exceptionally erected, which then have the same fortress-like appearance, they project somewhat beyond the facade and enclose a small porch between them, or they are placed beside the side aisles, whereby either the porch entirely disappears or is transformed into an entrance portico occupying the entire width. The broad, r round enclosures of the doorways and windows, often treated w with frequently coupled slender half columns (Fig. 83), in combination with projecting wall strips and arched galleries, slightly projecting and often with repeated horizontal bands and the crowning battelemnts, form the most important members of the external architecture. In the general appearance (Fig. 80) the English-Romanesque architectural works make a bold and grand, though also a severe and dry impression. The masses of the building seem less enclosed by the strongly projecting transepts, than the cathedrals on the continent, whereby is somewhat obviated the heavy effect of the masses produced by the towers without spires. Likewise the interior calls forth the same expression by the extraordinarily stumpy piers; by the abundant use of ornaments-- almost exclusively zigzag and fret bands, diamond and interwoven scrolls, stars, waves and the like (Figs. 78, 84)-- this is softened but little.

The oldest structures, as for example the chapel of S. John in the Tower at London (Fig. 81), erected by the military architect of William the Conqueror, are very simply treated with stumpy round piers, plain walls and tunnel vaults. To the principal churches of the developed English-Norman style belong:- the cathedral of Winchester (1079-1093) with an extended crypt, later frequently restored and transformed; the cathedral at C Canterbury, dating from the same period, of which indeed only the grand crypt (Fig. 82), certain parts of the choir and the towers of the Norman structure remain; the cathedral of Ely (1082-1174), which still affords a beautiful example of the rich Norman style of the 11 th century in its three aisled transepts with galleries, triforiums and blind arcades, but otherwise and on the facades is evidently rebuilt; the cathedral of Gloucester, founded 1089, whose round piers in the middle aisle and especially in the crypt indeed assume colossal diameters; the cathedral at Norwich (after 1096), grandly planned with great dimensions and well preserved with the exception of the later middle aisle and of the tall Gothic window of the f facade, (Fig. 83); the cathedral of Peterborough (Fig. 77) (1140-1193), an imposing work, that must purely exhibits the Norman style by its ancient wooden ceiling in the middle aisle and the heavy ribbed cross vaults in the side aisles, but on the facade by the great openings of the entrance porch,and the pointed arches already show the invasion of new conceptions. Likewise in the abbey church at Waltham, a structure with alternating supports, round piers and richly treated details, is Norman art represented in its purity. These churches with round piers (at Waltham, Gloucester etc.) make a more satisfactory impression internally with their horizontal ceilings, than the chathedrals with the much subdivided piers (at Winchester, Ely, Norwich and Peterborough), since these (at least originally) lack the vaults prepared for by the plans of the piers. Only the imposing cathedral of Durham (1093-1128) proceeded to the completion of its system, when it also covered the middle aisle by ribbed cross vaults. (Fig. 78). The exterior (Fig. 80) allows the subdivision of its structural masses of the English cathedrals to plainly appear; the galilee chapel (Fig. 84),

is a show piece of English-Romanesque architecture strikingly characterizing the style.

As exceptions to the general scheme of the Norman churches are to be mentioned some central plans ascribed to the Templars, the tomb churches at Cambridge and Northanmton, each with eight internal supports and an outer aisle, as well as the Temple church in London (S. Mary's church), erected 1185, a corcular structure with slender compound piers of four columns to support the ribs and pointed arches. Likewise into the English nave churches the pointed arch early penetrated, evidently by the mediation of the Cistercians, indeed at first only in the arcades, while men characteristically still firmly adhered to the wooden ceilings. But in the last quarter of the 12 th century the innovations came in so, that already at this time men entered into the Gothic period in England, thus considerably earlier than in Germany.

B. Romanesque Secular Architecture.

Besides the grand creations of interiors in ecclesiastical art, the secular architecture of the Romanesque period occupies only a very modest portion, at least in the earlier period, but from the middle of the 12 th century onward, it acquired constantly increasing importance by the advance of city and c castle architecture. The Romans already had founded numerous settlements on the soil of ancient Germany, particularly in the Rhine and Danube provinces, first as castra (regularly arranged and well fortified military camps; see volume 3, page 128), and then from these settlements were derived populous cities (Strasburg, Mentz, Frankfort, Treves, Cologne, Xantes, Passau, Regensburg etc.). In them may yet sometimes be recognized certain straight streets intersecting each other at right angles in the midst of the otherwise so irregular network of the alleys of the oldest quarters, the former streets of the Roman camp. But most early mediaeval cities originated (aside from the direct foundations by the princes, as for example Goslar by Henry I, Bamberg by Henry II) from small settlements of an agricultural or industrial sort on sites favorable for them, especially on navigable rivers, at the intersections of important traffic routes etc. * By the resulting gr-

grouping of buildings without any definite system, there originated an almost planless labyrinth of alleys, large and small, at about the middle of which were erected the bishop's cathedral and palace, frequently in connection with a monastery design. Besides these more important structures scarcely any but the residence of a ruler acquired a prominent position.

** Regular plans of mediaeval cities with a rectangular network of streets, such as occur in southern France and in the n northeast provinces of Germany, are always to be referred to systematic foundations, in Germany chiefly to the Teutonic Order of knights, whose grand master had his chief seat in Marienberg after the year 1309, from whence was developed a strong activity in colonization.*

The cities then received fortifications at a very early time, mostly by a high wall furnished with slots for shooting, battlements and with inner defensive passages, and which was occasionally strengthened by small rectangular towers. (Fig. 85). Only the gate towers over the vaulted entrances through the c city walls were constructed with particular strength and designed with architectural decorations in the forms characteristic of the country. (Fig. 86). The exterior was preferably constructed with bossy ashlars, which gave an unusually solid and safe appearance, while the internal side, where protection did not seem necessary, was formed by weaker walls, half timber or wooden construction, sometimes being left entirely open. In the 13 th century the gates over the main entrances were developed into defensive buildings of two or three stories with a high tower rising above the roof or even with two flanking towers (one of the most beautiful examples of this is presented by the Romanesque gate at Comburg near Schwäbisch-Hall). Men soon decided for furter securing the entrances to place opposite them a separate advanced structure defended by towers. A About the end of the 13 th century, they commenced to excavate a ditch before the walls and to fill this with water, if possible.

Within these walls and with the rapid growth of the city, o only a very small area could soon be assigned to the separate dwellings of the citizens. They must be developed in height

rather than in width and to be quite sufficient for light and air. A generally followed scheme could not be established for the ground plan. The ground story was intended for the practice of the calling as merchant or mechanic; the upper stories served for residence. Almost always with reference thereto, the steep roof could not be allowed to slope toward the narrow street, but the house facade had the gable turned toward the street. The houses of the simple citizens mostly consisted of a low stone substructure only extending but little above the ground level, but otherwise of half timber work, posts and girts, whose panels were filled with bricks, or with interwoven wooden strips with a mixture of straw and clay and then plastered. About the middle of the 12 th century the half timber work in certain cases was changed into stone construction, indeed at first only in the ground storw, which was sometimes covered by cross vaults on heavy stone piers, while the half timber work was still long retained for the upper stories. Later, in the 13 th century, also originated citizen's houses of stone in several stories, on which the endeavor for a monumental architectural appearance and the joy in ornamentation appeared. Their gables are always stepped. Such stone houses or their remains are found at Cologne (house on wool market and the Overstolz house at Cologne; Fig. 87), at Boppard, Aix-la-Chapelle, Treves, Metz, Gelnhausen, Saalfeld in Saxony (the beautiful purely Romanesque city pharmacy) and particularly in Regensburg, that city rich in Romanesque monuments. Also in France, in the south as well as in the north, certain citizen's houses in the Romanesque style still remain (for example in C Cluny and Caussade), Likewise in England (at Lincoln) and in Belgium (Ghent).

Little attention is paid to capability of defense on these citizens' houses. The patricians and nobles taking part in t the government of the city, who had their residences in the c city, already took greater care for their personal safety in the usual internal contests and street fights. They arranged the first story, and often the second, for defense, even building dwellings in the form of strong towers with very thick walls and elevated entrances. Thus originated the mediaeval li-

living towers, that mostly contained the council chamber in t the lower story, in the second being the space for the kitchen and servants, in the third for the family, over which was the men's (knights, state) hall, and finally the chamber for the tower watchmen and the place of defense (platform) with a series of battlements. This design of tower (Fig. 88) is a commonly occurring form of the dwelling (termed donjon in France, keep in England), but it in Germany but seldom. Great residences of rulers within the cities were yet chiefly strongly fortified by moats, enclosing walls and towers, and they then formed the nucleus of the city fortifications.

Romanesque stone construction attained to increased importance by the erection of necessary fortress-like dwellings for the ruling nobles in the country, castle architecture, whose origin in its present sense falls in the change from the 10 th to the 11 th century. Both by choice of site as well as by t the entire plan and construction were utilized the advantages afforded by the location, steep slopes of hills and watercourses, for effective defense as much as possible. (Fig. 89). Already therefore men nearly always departed from a certain geometrical regularity of plan. The latter was limited in the o oldest and simplest form to the keep, the castle court and the enclosing walls. The keep, an octagonal or circular, rarely polygonal, unusually strong and high tower, whose entrance lay on the most protected side (sometimes 49.2 ft. above the ground) and could only be reached by ladders or easily removable wooden stairs; it served as watch tower and defensive building, and in the first period (in France and England even still later, but in Germany always more rarely) for a dwelling, then having the already described division into stories with a corresponding internal width (for example, at castle Augenstein near Basle, 32.8 × 39.4 ft.). About the end of the 11 th century the dwelling was almost always arranged in a separate building. The keep then came into consideration only as a place for retreat, or the last place of recourse, and therefore its width could be considerably reduced.

The dwelling of the nobles, the palace, then became the proper monumental structure of the castle. It substantially consisted of a hall building, rectangular if possible, with open

flight of steps and coupled round arched windows, which sometimes extended along the entire inner side as an arcade, containing in the ground story the kitchen and offices, in the second generally the great hall divided in two aisles by a row of supports (Figs. 91, 93), besid it being the chapel (in great castles). If a third story existed, then in it were the smaller warmed living rooms (kemenate), in case they were not placed in the second story or in an adjoining building.

Subordinate structures for the servants, the garrison and t the stables were established separately in the castle court or at suitable places within the enclosing wall. To the preservation and increase of the capacity of resistance to attacks a also was devoted a watchful eye. Like the city walls, so the enclosing walls at the entrance to the castle and other dangerous places were defended by strong towers.(Fig. 90). Very commonly the entire castle was enclosed by a second or third external enclosing wall and one or more outlying forts, so that the main castle was surrounded by lattle castles, that must be first taken by the besiegers before it could be reached.

Among the numerous castles -- there stand about 10,000 in German speaking countries, more thickly in the valleys of the Rhine, Moselle, Nahe and Neckar-- the most important places b being taken by the seats of the reigning princes and the imperial palaces. We here only name of the former the Wart burg near Eisenach, founded in the year 1067 by the Thuringian landgrave Ludwig the Springer, and the castle Dankwarderode at Brunswick, built by the Guelph duke Henry the Lion in 1166-1172, and among the imperial palaces the ancient and venerable imperial palace at Goslar, already founded (1002-1024) by Henry II, enlarged in 1065 by Henry III (Fig. 91), as well as the imperial castles at Hagenau, erected and restored by Barbarossa (1152-1190) and his successors, Kaiserslautern, Wimpfen, Nuremberg, Eger and Gelnhausen. The imperial palace at Gelnhausen (about 1180-1200) is especially important to us, since the original impression of its mighty ruins has not been obscured by uncertain restorations, and the former arrangement, which is also repeated in other castles of that time (especially at Mü Münzenberg in Hesse), is still plainly visible. It lies on an island formed by the Kinzig, a right branch of the Main, and

is accessible by a bridge, that leads through the tunnel-like and vaulted two-aisled entrance hall, which opens inward, and from this into the castle court, having about the form of an irregular hexagon. In this stands on the right the massive k keep; opposite the entrance are housekeeping buildings against the enclosing wall, on the left lying the palace.(Fig. 92). It was formerly three story and had in the ground story the kitchen, council chamber, and living rooms for male servants. In the middle story, which was entered by a flight of steps and through a portal covered by a trefoil arch, lay the great two story hall, measuring 39.4 × 42.7 ft., opening into the castle court by coupled arched windows and containing the great fireplace and two other apartments. In the upper story were found the living rooms for the family and the female servants. Over the gateway hall lay the castle chapel, treated in the noble form of the style of the transition period. Of the splendid internal equipment of the palace of the great dynastic castle, the indeed restored but still in truth the ancient singers' hall of the best preserved Romanesque palace on German soil, a representation is given. (Fig. 93).

If we glance over the vast wealth in monuments, that Romanesque secular architecture has left on German soil in the stately ruins of the castles of the former princes and great men, then is also here manifested the unequaled creative power of Germany, that just in the German provinces, where it remained purest, its course of artistic development formed a constantly ascending line, and after a few centuries reached an elevation, at which it created the noblest art works, derived from its m most original nature. These great artistic deeds fall in the splendid political period of the German empire, in the days of the Hohenstaufens, in which the German people rose to an unexpected climax, which it never again attained. With the decadence of this noble ruling race it descended from its height. That time, when the curly head of the last Hohenstaufen fell under the axe of the French executioner, indicates the end of the German style and the invasion of the new art style of the later middle ages, born in France.

GOTHIC ARCHITECTURE.

I. General and Historical Basis.

Until about the middle of the 13 th century Germany exercised a supremacy over the Christian peoples of the West. But thenceforth the importance of the German imperial power, which had been perceptibly lessened by the hard and useless contests with the Papacy, constantly diminished. After the campaign, undertaken by the last representative of this splendid race in order to enter into the inheritance of his father beyond the Alps, had ended with such a lamentable termination, there broke over the German lands that "emperorless" and in truth "terrible time", which most deeply shattered the political and economical life of germany. When orderly conditions later appeared with the restoration of the kingdom, the German empire, by the division into its numerous separate states, could no longer rise to its former greatness. The political centre of gravity of middle Europe was transferred to the West, to France, where the royal house of the Capets, originally sprung from modest conditions, by a wise state policy gradually rose to a position of supremacy, that frequently erercised a determining influence on the history of the nations of the West.

But France not only assumed the role of leader in political respects, but also with reference to intellectual life. Already after the beginning of the 13 th century appeared an unusual intellectual fertility, especially in its northern provinces, that rose in the capital to an elevation full of importance for the entire West. Paris gradually became the most prominent metropolis for the learned and the artists, and according to the testimony of a contemporary writer, a "fountain, that watered the entire earth". There the secular rulers compoceted with the princes of the church in the fostering of the sciences and the arts, conscious of their aims. German theological students attended the university of Paris to complete their studies there, and likewise for the German stonecutters, Paris formed the most attractive gathering point, that afforded them the most favorable opportunity for their further training. The high advance was however not limited to the capital and the adjacent provinces; all France entered on a period of

bloom about 1200, and upon a general architectural activity, that may worthily stand beside those of the great periods in the history of art.

It was infallible, that just France, where the powerful movement produced in the West by the crusades found its inspired supporters, where the reform movement initiated by the Waldenses and Albigenses took its start, also was earliest affected by the revolutions, that occurred in the 12 th and 13 th centuries in the religious domain and in the entire mode of thought of the western peoples. In unexpected measure had the crusades enlarged the intellectual horizon, a forgetting of the national frontiers, produced a reciprocal approximation and thus aided a certain international feeling, that could not have occurred earlier. This was supported on the one hand by the international orders of monks, who had meanwhile attained to high power, and on the other hand by western knighthood, b bound together in common views and endeavors. But all were u all were united by the ecclesiastical bond gast by the church around all Christendom,and the supremacy of the papacy, that reached its highest power about the end of the 12 th century (under Innocent III, 1198-1216), the rule of the successors of Peter over the kings of this world.

Under these circumstances there naturally fell to the clergy, as representatives of the hierarchy, the most influential role in the society of the time. Beside it stood the (secular) knighthood entering on its greatest climax in the 13 th century, and the ecclesiastical knightly orders, who joined together according to monastic laws and rules of life as faithful Christian warriors in the combats woth the infidels and for the protection of the church. But to these were added as other i important bearers of civilization, the united citizens of the free cities, who attained to great power, sometimes entirely independent of the authority of the state, especially in Germany, the Netherlands and Italy, and in their prosperity blossomed a rich intellectual and artistic life. They soon appeared as owners beside the ecclesiastical and secular founders of churches and monasteries, since they required more spacious c churches by the rapid increase of the inhabitants. The common

sense of the citizens tended toward a monumental expression of their prosperity by lofty Houses of God, visible from afar, t that should form an indication of the importance, greatness a and flourishing condition of their city. But thereby the execution of buildings, that in the Romanesque period was chiefly an affair of the cloister brothers, passed into the hands of secular architects and workmen, in France about 1250, in Germany at latest about 1300. They united in the building lodges, in which were arranged the conditions of working, and the mysteries of high art were taught and learned as in a school. T The building lodges chiefly comprised the masons and stonecutters settled about a great cathedral building, but also frequently formed extensive associations, within which occurred a regular transfer frequently of workmen from far separated regions. * Written contracts regulated the obligations of the owners and architects. The works of the journeymen were accounted for by definite marks, given them by the master, and cut in the different dressed blocks, the stonecutter's marks, (Fig. 94), which were asol introduced by the casters in their arms and seals. In the cities the masons and stonecutters as well as the other tradesmen also gathered in guilds, to whose thorough training, carried out as in the building lodges, is due the careful execution of art forms. To the master's pride here fostered was it to be attributed, that the artists now a appeared in the foreground with their personality and their names, and ensured to themselves a permanent memorial by sculptures of the artist and architectural inscriptions on their works. By the numerous names of artists preserved to us from the late middle ages we recognize the lively interest of the entire people in the masters and their creations.

** On April 25, 1459, there met at Regensburg a great general assembly of the building lodges, at which the union of all stonecutters of German speech in a great general organization w was decided upon, with subordinate divisions in the four great precincts of the building lodges at Strasburg, Cologne, Vienna, and Berne, among which Strasburg was decided on as the capital.*

Likewise the second period of mediaeval art received its purport from religion, even more strongly expressed than in the

Romanesque period; for in an infinitely higher degree the church, by Catholicism, the mind and the entire intellecual life predominated. The mysticism succeeded in its highest development in the Romanesque period, and which was perfected in meditation on the internal communion with God, and the giving up of individual consciousness, finding such an impressive reflection in the harmony of the Romanesque churches, was dissolved by the philosophy of the scholastics, whose endeavors were to prove the teachings of the church as divinely presented, above all individual criticism, and to fix them in a system of formulas. Likewise of this the architectwee of the later middle ages gives a vivid reflection. The proper world of representation departed; the entire strultural system was developed as derived in rigid sequence from the construction and a formalism carried to the highest clarity, which banned all diversities and excluded all personal caprice.

And yet within this system in architecture and still more in sculpture and painting is perceptible a slight beginning of t that refreshing tendency, that was to come to full appearance with the entrance of the following period, the loving observation of nature. Yet also already about the middle of the 13 th century very important learned men had made the claim to oppose to the monarchy of the scholastics a science based on experience, and to base this on a thorough observation of nature. But the deeply religious feeling, that dominated that time, was not influenced by them; men were still more believing than before. That unfortunate fervency of belief, which made the crusades possible, produced in the people the depth of emotion, recognizing in entire nature the power of the creator, a true Christian conception of life, as it was preached by the newly founded and influential Order of Franciscans; it was also manifested in church architecture in an even unequalled willingness to make sacrifices, in a boldness, which yielded to no hindrances; it also found for itself an individual artistic expression, in which the idea of a Christianity striving to free itself from the weight of earth and toward heaven indeed appears chiseled in the stone. Thus arose a new, purely theoretically conceived style of art, developed with the m

most acute consistency, that freed itself almost completely d from the national chahacter, and entirely proceeded from the Cheistian religion as the simple basal opinion of the mediaeval world. It therefore became, not the possession of certain professed persons, but the common property of all; therefore its popularity, its deep penetration into the simplest room of the outlying corner.

This art style was actually based on the Romanesque, whose final results in regard to construction it adopted and extended to all members. But while in the Romanesque style we perceive still the echos of the antique spirit, the architecture of the later middle ages is based on principles, that are diametrically opposed to the classical principles of art. The I-Italian writer on art, Vasari, a contemporary of Michelangelo, whose dominating conception of art entirely after the antique prevented all understanding of its forms, gave it the name of Gothic style, combining therewith the idea of recalling the b barbarous and uncivilized Goths, an appellation retained until the present time, however little justification occurs for it.

II. The evolution of Gothic architecture.

The Gothic style sprouted from the soil of France, yet not as essentially a product of the French nation. It appeared first in northern France, just where Romanesque blood was most strongly intermingled with the German of the Celts, Franks and Normans, as a creation of the German intellect, though not exclusively so; it also found its highest development in German lands, while the purely Romanesque peoples inclined toward the antique in their entire art conceptions, and participated in its development in but a small degree.

The Gothic style was already partially prepared for in the Romanesque, the choir aisle, the richly subdivided pier, the system of ribs, the pointed arch in the vaults and the buttress. It matured into a definite system about 1150 in the middle river valley and north of the Seine, in the Isle de France and in Picardy. Here were combined the innovations, which had already resulted in detali for a long time in various countries, into a consistent, harmonious and definite whole. Here appeared earliest the mighty architectural spirit of a new pe-

period, thoroughly permeated by a longing for heaven, which w willed the height, slenderness and brightness required by the House of God, in which the dead structural masses were inspired, the souls of the devout should be freed from the weight of earth and be elevated to clearer heights. And therefore this also theoretically and structurally established the highest r requirements. By the consideration of the method and manner in which these were solved is also disclosed the understanding of the entire nature of Gothic and a complete view of its course.

The chief attention of the architects must naturally be devoted, first to make the vaults covering the interior as light as possible, then to reduce the supporting walls and architectural members in dimensions as much as possible, and to so arrange that in their dimensions and forms they correspond exactly to the functions falling to them. By the erection of the cross vaults with ribs (page 12) the entire weight of the ceiling was assumed by the ribs. The compartments between them c could be treated as thin panels, and indeed be made thinner a and thus lighter, the smaller the separate panels and compartments of the vault. Therefore men soon proceeded to increase the ribs by the arrangement of hexapartite vaulted constructions (Fig. 95), or by placing the ribs in the form of stars or of network, whereby originated the so-called star, net and fan vaults. (Figs. 106, 189). The continued increasing of the ribs again reacted on their thickness, when since the load ever became less, they could be made of comparatively lighter sections.

In full dependence upon the subdivision of the vaults, or of the ribs combining at the imposts, are the piers treated. From the round nucleus as a rule project round three-quarter columns (rounds), that exactly correspond in location and cross section to the ribs, the larger ones to the cross aud longitudinal arches, the smaller to the diagonal ribs. (Fig. 96). In English buildings the supports of the ribs appear as slender round columns, between base and capital free from the nucleus of the pier, thus becoming "disengaged", but later again united with it.

If the ribs extending from the pier are increased, its subdivision proceeds equally; the rounds are likewise increased, are separated by deep hollows or entirely conceal the nucleus and thus appear as clustered piers, on which the vault ribs in a manner are joined together and rise from the base. (Fig. 152).

On the piers shaped as free supports rests only a vertical pressure, since the side thrust of each separate arch is equilibrated by the opposite one. The combinations of pressures act otherwise in the outer walls at the points on which the ribs meet. Since the counter stress is wanting there, a strong side pressure acting outwards makes itself felt, and when galleries are lacking, this must be met by special construction. On the external walls of the side aisles and of hall churches, this was obtained in the simplest manner by the construction of buttresses, which received the thrust of the vaults. (Fig. 100).

More difficult is the problem for the clearstory walls of the middle aisle rising above the side aisles. No buttresses can be arranged for these, since to extend them down through the roof of the side aisle to the internal floor, or rather their construction from thence, would have injured the entire effect of the interior in the worst manner. Therefore men came to the fruitful idea of receiving the pressure of the vaults on the clearstory walls by a free arch and of transmitting it to the extended buttress of the side aisle. (Fig. 97). With the adoption of these flying buttresses (buttress arches) the Gothic style reached its full maturity. Aside from the abbey churches at S. Germer (page 47) and S. Denis (1137-1144), where the original buttressing is no longer recognizable with entire certainty on account of later changes, these are to be f found in their original condition on the cathedral of Noyon (completed 1167) and of the abbey church at Dommartin near Chalons (1153-1163). In this buttress construction, which was originally only executed in ashlars without ornamentation, the construction appears in entire nudity.. The external appearance of the cathedrals was sacrificed in order to secure the most advantageous treatment of the interior.

The introduction of the buttress system coincided in the or-

broadest sense with the Gothic structural principle requiring
the reduction of the masses. Since the entire load of the va-
ults was received by the buttresses and flying buttresses, the
walls lying between these merely had to support their own wei-
ght. The opening of the walls in favor of the arrangement of
colossal windows was no longer opposed by any statical reason.
The cross sections of the buttresses may then be reduced upwa-
rds in the same proportion as the pressure to be supported by
them is lessened. As in them, there is also made in the other
structural parts from below upwards a continued change from h
heavy to light.

The entire architecture obeyed the general desire for height;
this is indicated by the pointed arch already prevailing for
all vaults and openings, as well as the strong emphasizing of
vertical lines produced by the buttresses and the entire subo-
rdination of horizontal lines. The structure therefore ever
became more slender; all proportions were elongated, and all
architectural members were finally reduced to just the dimen-
sions necessary for their purpose, until finally the entire
building appeared as a skeleton-like structural framework, on
which the masses diminish upwards. (Figs. 98; 158). In the
combination and the resulting alternation of the entire effect
of pointed arches, cross ribs and buttress construction thus
lies the nature of Gothic.

79 This matured state was already attained at the middle of the
12 th century in the vicinity of Paris and in the French prov-
inces lying further north. From thence the new style extended
under the active fostering of the influential Cistercian Order,
particularly inclined toward the strict Gothic structural prin-
ciples, over all France, through the Norman-English possessio-
ns to the British kingdom, over Germany, Italy and Spain. Ev-
en if in various lands and places the existing architectural
traditions reacted, if the requirements of the Orders were ef-
fective in other ways, and the school training and traditions
in the different building lodges and even in the families of
stonecutters led to various peculiarities, yet the Gothic sty-
le still retained its international character.

In its evolution may be distinguished three periods in gene-
ral, that characterize the development, climax and decadence

of the style, the early, high, and late Gothic. Yet a corresponding limitation in time can only be made with regard to the different countries. For at the end of the 12 th century, France had already passed through its early Gothic, when this f first set in throughout the greater extent of England; but in Germany the earliest works of the Gothic style originated in the second quarter of the 13 th century, and it first generally appeared at about 1250. Therefore we shall fully describe the periods to be considered in regard to the various countries with the monuments concerned, and the characteristic style changes in the Chapters on the architectural treatment and the decorative equipment. (Pages 82 and 97).

A. Gothic Church Architecture.

The Ground Plan.

The Gothic transformed the ground plan in a far less degree than the superstructure. The mode of worship remained the same, and the time had set no different requirements in regard to the rooms, nor their grouping. Only for the choir was required, particularly in the great cathedrals, the principal churches in the residence city of the bishop, in view of the increase in the clergy and their participation in the ecclesiastical ceremonies, a greater extent and richer treatment, and with reference to the relics obtained by the crusades and the increasing veneration of saints, an increased number of chapels for the establishment of altars for saints and reliquaries. In order to make the sacred bones generally accessible for veneration, they were now generally placed in the altar table, enlarged for this purpose. The crypt was therefore regularly omitted.

But otherwise all types of plan had already been produced in the Romanesque period. The further development substantially concerned innovations, that resulted from the acquisitions of Gothic treatment of vaults. These first of all consisted in the complete freedom from the restricted Romanesque system by the introduction of continuous bays (of equal length), thus b being an equal number of bays of vaults in the middle and side aisles (by placing the rectangular bays across the middle and lengthwise the side aisles; see page 4 and ground plan in Fig.

6), and still further in the polygonal choir endings produced by the ribbed vaults and the construction of buttresses. The nave system, introduced with the Early Christian basilica into Christian civilization and developed in the Romanesque period, always characterized the expressed ground form of the Gothic church, in which it was brought to the highest possible perfection everywhere. According to the kind of choir or nave plan, four main groups may be made in this system; the so-called Gothic cathedral ground plan with choir aisle and circle of chapels, the earlier basilican scheme with simpler form of choir, plans with two aisles, and those with a single aisle.

The most developed form is represented by the so-called Gothic cathedral ground plan with choir aisle and circle of chapels. (Fig. 99). It consists of a three, five or even seven a aisled nave, transepts one or three aisled and projecting but little beyond the line of the nave, and a choir lying on the prolongation of the middle aisle and ending in a regular polygon, around which the inner or all side aisles were carried as choir aisles, and which ended externally with a radially arranged circle of chapels. (Fig. 153). The transverse aisle was frequently omitted. The chapels also sometimes extend along the nave walls to the western facade. On this two massive towers rise over the entrances to the side aisles. (Fig. 131). B Between them lies the grandly designed main portal. This ground plan is chiefly found in cathedrals, but is occasionally met with in monastery and sometimes even in parish churches.

The churches firmly adhering to the older basilican scheme are somewhat inferior to the great cathedrals. They differ in ground plan from them chiefly only by the choir plan. For the nave is retained as in those. But the eastern part ends with a polygonal apse for each aisle, that no longer has the character of a niche, but appears a continuation of the interior of the aisle, with the same width and height. This adherence to the simpler plan is connected on the one hand with endeavors for simplification in the high Gothic, and still more prominent in the late Gothic, that were favored by the reform movements of the Franciscans and the Dominicans. These beheld pure Christianity in the return to poverty, and in the teaching of-

office typified by Christ's Sermon on the Mount, thus in preaching, the chief part of the divine service. On the other hand the citizens, who were in direct sympathy with this Order enjoying great popularity, demanded greater attention to the lay element in the plans of city churches. Thus the choir lost in importance; sometimes it was entirely omitted. Since a single room proved bast adapted for preaching, men decided to prefer the hall church scheme (Fig. 100), also moved the buttresses toward the interior and placed galleries between them in order to obtain more space for the auditors. With greater requirements for space, men not seldom passed in late Gothic to five aisled hall churches.

The endeavor of the preaching Orders mentioned to not exceed the requirements for space also led to the erection of two aisled churches. These consist either of a main and one low side aisle in the form of a basilica developed on but one side, or then assume the more common form of a hall church with a middle row of supports and a choir lying on its axis, if not as more rarely the case, doubled choirs are arranged beside each other, in order to not conceal the view of the altar by the row of piers. In the simplest form of this type, to which belong numerous churches, especially those erected by the Franciscans and Dominimans in germany and Austria, with but a single support in the middle of a square principal room. Also e exceptionally occurs an extension of this system to a four aisled hall church with two symmetrical choirs. (Church at Schwaz in the Tyrol).

Plans with a single aisle form the rule in the smaller city and country churches, but in France, where the hall church enjoyed great favor already in the Romanesque period, as well as in Spain, Italy and England, even came into use for great cathedral buildings. In them the unified effect of the undivided interior is grand.

Although on the great cathedrals with choir aisle and circle of chapels the eastern part appears to be one half a central plan, entirely central buildings are a rarity in the Gothic period. These were indeed introduced very early in the Gothic (in the Liebfrauen church at Treves, built 1227-1250), but th-

they could acquire no school-forming importance, at least in church architecture, and they but exceptionally found acceptance in certain chapels in Germany, Portugal, England and in English chapter houses. The ground plan then follows the Greek cross with a circle of chapels extending around it (Liebfrauen church at Treves), or the polygonal structure with a low outer aisle or star-shaped radiating chapels, or also the polygon with central pier and annular vaulting. These central buildings afforded excellent opportunities for the rich development of the star, net and fan vaults. (See page 86).

II. The building and its architectural treatment.

The Gothic middle ages created Houses of God of such vast extent and extreme height, that the owners and masters, who devised and commenced them with their direct successors could never entertain the hope of seeing them in their completion, that rather their execution required the greatest endeavors of several generations, and to many buildings fell the lot to remain unfinished. And this did not refer to such masses of buildings, as were erected in the Romanesque period, but always to a well conceived, carefully constructed organism, on which each separate architectural member was set in alternating relation to all the others, or was deduced from them with the most acute consistency. Therefore an accurate laying out of the plan was necessary, and this required a knowledge of architectural construction far excelling an acquaintance with the practical procedures in everyday use, and a deep insight into the statical conditions of buildings. It is just the high technical undertakings of the chief masters of Gothic cathedrals, t that fill us with surprised amazement today, in our so advanced age in regard to expedients, in view of these colossal structures raised to such a dizzy height.

Thus the technical procedures commenced with the designing of the plan. Various examples of these have been preserved . (Of Cologne, Strasburg, Ulm, Vienne etc.). They exhibit by the numerous sketches of elevations on the plane of the ground plan such a dense complexity of lines, that only masters versed in the mode of representation could understand them. In scientific expedients, quadrature and triangulature, geometry and arithmetic, the golden section, and definite numerical propor.

proportions occupy an important place. Particularly in the d dimensions and construction of Gothic churches the eouilataral triangle appears to play the same part as the square in the Romanesque buildings. Statical calculations in the sense usual in modern technics were not made. Men depended upon definite experimental principles, that formed a chief part of the tecnical instruction in the building lodges, and these were strictly kept secret from non-members. They were transferred by oral traditions to the younger generation in the building lodges and the families of the stonecutters, but later with the extension of printing were also partly fixed in book form, and thus have been occasionally preserved to our time. From these manuscripts and the artistic representations mediaeval building construction proceeded, so that the scaffolding of the structures, the obtaining of the material, the use of the tread wheel for hoisting and setting stones, certain general and everywhere remaining methods and customs were developed, that a are also in part in use today.

Since ashlar construction permitted the highest artistic treatment, men preferred as materials the native cut stone in the different regions. The procuring of this often caused great difficulties and disproportionately high cost, while the wages of labor were very low. This explains the extreme utilization of the material and the expense, that the generally careful dressing of each separate stone required. Where men were restricted to bricks, as for example in the north German lowlands, they must limit themselves to great simplicity of t the system and of the detail forms. Yet they understood how to produce splendid effects by the happy use of the motives of the blind arcade, favorable to masonry construction, by the g graceful mouldings of the enclosures of the windows, by brick friezes, netted, lattice-like and freouently recalling Norman=Arab ornamental patterns, and by varied treatment of the gables.

We have already described the structure in its main lines. While we now take it up more fully in regard to its details, we shall consider the architectural treatment compelled by it in a far greater degree than in any other form of art. With

the introduction of the continuous bay (page 80) occurs a uniform loading of the internal piers. The prevailing alternation of heavier and lighter piers in the restricted Romanesque system, according to whether they stood at the angles of the squares of the middle aisle or between them, consequently (with few exceptions) gave way to an entirely uniform treatment of all piers. Their subdivision was limited in the early period to a circular nucleus with four or eight slender columns (Figs., 96, 101), but then with the richer treatment of the vaults passes to the clustered pier with deep hollows between the rounds, but again simplified in late Gothic by a round or octagonal form of the shaft with very slender proportions, in order to obstruct the view of the preacher as little as possible. Sometimes capricious works are attempted, for example spirally rising thin rounds about the circular nucleus (Fig. 163). The pier stands on a polygonal or square base, beveled at the angles, that stops at top in hollows between the supports of the rounds. A very low and plate-like base, still recalling the sequence of members in the Attic type, whose mouldings also extend around the nucleus, forms the transition to the shaft of the pier. (Figs. 101, 152).

The columns extending on the pier as rounds here have a slender and often very thin shaft, as a rule smooth and not diminished, as well also as when employed as free supports. The capital mostly loses its original meaning as an architectural member receiving the load horizontally and transmitting it to the shaft; it rather appears as a strengthening and interrupting of the shaft caused by decorative reasons, and therefore in the late Gothic with its aim of simplification, it is not rarely quite omitted. Its basal form is that of the bell, and so long as the abacus had not assumed the polygonal form, projected beyond that. At first the conventionalized bud capital of the late Romanesque period remained in use. (Fig. 102).But at the same time was adopted the new and specific Gothic form of capital and (in Germany about from the middle of the 13 th century onward), it predominated generally. The bell form is covered with quite naturally treated foliage from the native flora, particularly with oak, maple, holly, ivy, vine, rose,

thistle and clover leaves, that partly grow out of the astragal or appear to be loosely attached. To produce a more tasteful effect when viewed from below and a better harmony with the deep shadows of the architectural members, the foliage received pattern-like forms and an ever progressing conventionalization by swelling out the leaves with strong accenting of the leaf ribs extending over the swells. In the best period may always be recognized the natural forms. But in the late Gothic originates that knobby, deeply undercut and withered foliage, which occasionally occurs in combination with entirely natural scattered or clustered blossoms and fruits, but otherwise all recollection of natural forms has vanished. (Fig. 103). By the arrangement together of the capitals belonging to the separate rounds on the clustered pier and the carrying of the mouldings and ornamental work around the nucleus, this received a graceful capital course as its upper termination. (Fig. 101).

The ribs rising from the piers retain in the early period the rounds in the hollowed angles, but replace them in high G Gothic by pointed rounds with pear-shaped sections. The profile of the pointed round at first has approximately the form of a circle with an attached fillet, but continually extends in depth, until at last (in the second half of the 15 th century) it contracts into a rectangular member with shallow hollows in each side. (Fig. 104). In the latest period to the ribs is frequently given the appearance of knotty branches or o other peculiar forms. The junction of the diagonal ribs at t the apex of the vault is effected by the boss (keystone), instead of which an open stone ring frequently occursa The boss is often richly ornamented by foliage, arms with inscriptions and figure sculptures. (Fig. 105). The English late Gothic exhibits as a peculiarity long keystone pendants, held by supporting iron rods, which sometimes are hung to two strong diagonal arches spanning the vault. (Fig. 140).

With the richer development of the system of ribs the construction of the vaults also changes. In the hexapartite cross vaults already occurring in certain Romanesque buildings of northern France (Fig. 95), there is added to the two diagonal

arches a third arch set crosswise and passing through the apex, which was therefore particularly suitable for the Romanesque system, since the two smaller side arches lying in the arcade walls corresponded to the squares of the side aisles. But the Gothic period soon passed over to star vaults. (Fig. 106 a). This original form of cross vault by the frequent subdivision of the compartments by ribs, which represent the star form in the horizontal projection. Frequently instead of the cross v vault occurs a domical vault in hemispherical form and passing through the angles of the vault bay, upon whose surface may t then be projected the ribs from the figure on the ground plan. Then the subdivision of long interiors into separate bays can still be retained. But the transverse arches are almost always included in the figure and thus lose their original importance, receiving the same size and mouldings as the other ribs. Later the division of the vault into bays was entirely omitted; the transverse arches disappear or seem unimportant portions of a network of ribs uniformly stretched over the entire interior. For these netted vaults the surface of the vault forms a tunnel vault intersected by small pointed vaults at the longer sides. The network of ribs is then first drawn on the ground plan in straight lines, afterwards being projected on the surfaces of the tunnel vault. But the late Gothic with the high development of technics and the purpose of undertaking s show pieces also at last abandoned the straight lines and replaced them by curves. In this manner were obtained the ribbed vaults with doubly curved ribs, soon such favorites.(Figs. 107, 161). Very frequently in the late period resulted the connection of the ribs, so that they crossed at the intersections and were cut off on the other side. If the ribs rising from a free support (pier or column) were very much increased in number, so as to be grouped in form of an opened fan, then originated the fan vault. (Fig. 189). This found a preferred use in the English chapter houses and in the buildings of the Teutonic Order of knights (Marienburg). In all these vaults the compartments were originally constructed with less and later with more swelling between the ribs (see pages 12 and Fig. 12). The netted vaults finally received an innovation in that the divi-

divisions of the network on the ground plan remained straight lines, but the compartments were replaced by high cloister vaults (volume 1, page 106) or pyramidal raised cells, indeed almost with the omission of the ribs. These cell vaults make a stalactite impression, especially for network with small meshes. (Volume 1, page 209). They occur almost entirely in the late Gothic of the Saxon provinces (among others in the Albrechtsburg in Meissen and in S. Peter in Brandenburg).

With the enrichment of the forms of vaults chiefly with the purpose of decorative effect, the thought returns to the consistent development of the construction. The execution of slender wall columns is no longer an indispensable requirement. They were shortened, thus beginning at a small distance below the imposts of the vaults on corbels, or were entirely omitted. The ribs then rest on corbels at the wall sides (Fig. 108). Finally they directly pass into the wall surfaces or the round or polygonal piers without any transition member. (Fig. 161).

Of the walls, in consequence of the great wall openings in hall churches, there only remained surface bands lying below the windows,with similar ones in the clearstory of the middle aisle of a basilican church. But also this part of the wall surfaces was then divided into the triforium (see page 20 and Fig. 109). The middle aisle therefore appears in four stories in the early period, so long as galleries were inserted; but later in the best period it became only three story with the omission of the galleries.

A particular development into perfected beauty was received by the windows. They chiefly lie in the middle of the wall with a strong splay downward, inside and outside. The jambs were subdivided in the richer treatment into alternating rounds or pointed rounds and hollows; they were always covered by a pointed arch in the early and best periods. In the clear surface the last remnant of the wall opened in the triforium disappeared in a stone tracery with the highest charm. The 1 lower portion of the window forming a rectangle is subdivided by numerous mullions rising vertically from the sill, and in tympanum of the pointed arch this passes into the tracery ((Fig. 110), the perforated stone slabs exclusively designed

with compasses and ruler, which artistically correct the mullions. The drawings are chiefly composed of pointed arches, circles and trefoils or quatrefoil arches, in which by tangential cusps projecting inward, are again fitted smaller and optrefoil or quatrefoil circles. (Fig. 111). According to the number of the latter are these figures termed trefoil, quatrefoil or polyfoil. In the second half of the 14 th century the tracery was enriched by a peculiar recurved and elongated two=sided figure with two cusps, which recalls the fish's air bladder and has also received its name. (Fig. 112). The late Gothic makes the most extended use of this new motive. By inscribing the fish bladder within the circle arises the three, four and polypanel. (Fig. 113). If there are three or more mullions, these often alternate in size (old and young mullions), and l likewise in the tracery are found corresponding main figures, within which are arranged the smaller ones. The mullions and the corresponding tracery ribs always have the same section, a projecting round in the early and the first part of the best periods, which as a slender column against the mullion is furnished with base and capital. (Fig. 111). Later the rectangular bar with hollows on each side became generally common. Extremely richly was developed the tracery of the wheel or rose windows. They are native in France and there belong to the m most splendid parts of the cathedrals, on which they find a p place on the most prominent part of the facade over the main portal. In Germany and England as a rule, a pointed window w with many divisions is arranged instead of them. (Figs. 131, 98, 142). The famous rose window of the minster at Strasburg follows French influences; it has a diameter of 45.9 ft.

The main portal is treated with great magnificence. As in the Romanesque period, the jambs are strongly splayed and are similarly formed, for little columns or rounds (later pointed rounds) alternate with hollows. The entrance opening is often divided by a middle post but retains the rectangular form. T The pointed tympanum thus produced is intended for the reception of representations in relief. Likewise in the richer development are statues inserted in the hollows of the jambs, each one of which is covered by a canopy, which at the same time

seeves as a corbel for the figure above it. Thus they form a continuous series, that ends above at the vertex of the pointed arch. (Fig. 114). Directly above the outer angles of the pointed archivolt generally rises a steep ornamental gable adorned with tracery (tracery gable), by which the portal is particularly accented. In the richer treatment the tracery gables are also found over the windows. (Fig. 115). The great cathedrals generally have two other and similarly treated side portals on the axis of the transverse aisle.

In the external architecture the buttresses are first apparent. They seem like strong supporting walls projecting from the face at those points where the bays of the vaults meet and the ribs unite in the interior. Corresponding to the pressure diminishing upwards they are offsetted several times, furnished with shed-like covering slabs at the offsets and covered at top by a gablet. At first entirely constructed of ashlars without ornament (Fig. 100), in the best and late periods, especially in moderate forms, they were ornamentally treated with mouldings, blind tracery and niches for statues. (Fig. 116). When receiving flying buttresses and in order to increase the resistance to side thrust by loading at top, they mostly receive an extension like a pier, at first covered by gable slabs, but later terminating in a steep square pyramid with the form of a small tower spire. (Fig. 116). Thus is derived from structural ideas an architectural member, indeed occasionally appearing already in late Romanesque and Byzantine art, but new in this application and very characteristic of Gothic, the finial as a little ornamental tower, consisting of the slender r rectangular "body", frequently opened to receive a statue and covered on all four sides, and the "finial" rising like an obelisk ("risen" from English to rise). These finials crown the buttress and the junction of the flying buttress with the wall, flank tracery gables, and at last also find a purely ornamental use as an aspiring and resolving motive, particularly on t the offsets of the buttresses and gables, sometimes even on t the oblique slopes of the latter. The flying buttresses at f first have the simple structural form made of ashlars, but are later splendidly decorated by mouldings and tracery. For five

aisled plans they are mostly supported or interrupted by intermediate piers, placed above the internal free supports of the side aisles.

Aside from the tracery gables soon (in France after the middle of the 13 th century) generally employed above the windows, the external wall surface lying between the buttresses received only on very rich buildings, and then almost entirely on t the main facade, a further subdivision by triforiums and blind galleries with mouldings and tracery, that either appears overlaid or free before the surface of the wall. The latter mode of treatment has a prototype in the Romanesque art of Tuscany. (Page 51). Transformed into Gothic moulded and tracery decoration, it is particularly favored for the resolution of large surfaces of gables. A particularly rich ornamentation was received by some great church buildings in France and England, (Notre Dame in Paris, cathedrals of Rheims, Amieys and Litchfield), when on them is inserted beneath the story with the r rose window a continuous gallery containing statues, the gallery of kings. (Figs. 128, 144).

The subdivision by horizontal members is almost entirely limited to the low and but slightly projecting band above the pl-
82 inth, the band below the windows, and the main cornice bordering the base of the roof. For the profiling of all cornices of bands is characteristic the beveled projection under half a right angle with a half round attached to the wall, a deeply cut hollow and the water drip, i.e., the upper surface steeply sloping outwards (Figs. 117, 118). In the best period the main cornice was preferably enriched by a foliage frieze. Above it and along the roof gutter (in France after the the second quarter of the 13 th century) extends the balustrade, frequently ornamented by the addition of figure sculptures. Fig. 118). The English buildings and those of the north German brick Gothic are crowned by a row of battlements instead. (See Fig. 147).

The roofs rise steeply and high above the main cornice or b behind the balustrade or battlements. Over the middle aisle the form of the gable roof continues in use, which terminates over the choir in a hip roof corresponding to the polygon of the great plan. The shed roof no longer appeared suitable for

side aisles. It was replaced by transverse gable roofs erected over the separate bays, and in view of the better removal of rainwater and snow not infrequently passed into the flat t terrace roof. (Fig. 166). Also on hall churches men generally sought to avoid the difficulties resulting from the covering of the entire bay by a single lofty gable roof and its heavy appearance by the arrangement of transverse gable roofs over the separate bays with hip roofs or gables along the sides. In north Germany and Holland there is found even lengthwise a gable roof over each separate aisle. The greatest attention was paid to the removal of rain water. It was collected in carefully cemented stone gutters, led down the tops of the flying buttresses over the side aisles and cast far from the walls by the gargoyles, shaped as distorted and fanciful human and animal figures. (Fig. 119).

The exteriors of Gothic churches on both sides and the choir only appear as an architectural covering and decorative treatment of a building skeleton, developed for pure construction, so that it rises in the facades and the architecture of the towers to an extremely monumental treatment, uniting the whole in a grand general representation. The number of towers is less than that of Romanesque church architecture. (The cathedral of Noyon, completed 1167, still has four towers at the a angles of the western facade and between choir and transepts, and that of Laon of 1174-1226 exhibits -- perhaps with regard to their effect on the finely located and elevated square -- even seven towers in one group, which is a prototype for the German cathedral at Limburg-a-L. (Fig. 9). Most Gothic cathedrals are limited to two massive western towers or even a single tower erected over the main portal on the longitudinal axis, and a small wooden roof turret above the crossing.

On the main towers may generally be distinguished an elevation divided into three parts; the substructure extending in s several stories above the roof or the ridge of the middle aisle, the bell story opening with great sound windows, and the spire rising above this in the form of a steep octagonal pyramid. They all have a square base, have massive and frequently stepped buttresses at the angles, which finally terminate in

canopy structures or finials, behind which the basal form of the upper part of the tower changes into an octagon. The spire was originally built with a solid wall (Fig. 120), then being constructed of slabs with slot windows or with openings in the form of open foils. (Page 88). Finally it was entirely resolved into open tracery. (Figs. 98, 158). At the edges of the tower pyramid adhere crockets or angle flowers, that seem to travel toward the vertex and thus complete the restless upward movement. The oblique edges of the gables, tracery gables, finials, and generally also the flying buttresses and buttresses are beset by these crockets. At first they have the form of opening buds with knobby enclosure (first on the cathedral in Laon), but then follow all style changes of Gothic f foliage ornamentation. The topmost crowning ornament of the tracery gables, finials and towers is always formed by the cross-flower, that consists of four crockets grouped around the apex of the spire, frequently arranged in two or several rows above each other. (Figs. 121 a, 121 b, 122). Thus the exterior of the Gothic cathedral, like the interior, appears as a highly individual architectural creation, in which the resolution of the masses is carried to the extremest limit of possibility, and in which a powerfully expressed life pulsates in all the members.

In the stage attained by the climax of the Gothic style, this represented itself as an organism without gaps, as a system matured in the least details. Hence it was also capable of no further fruitful development. The forms gradually withered. Already in the second half of the 13 th century occurred (in France) the first indication of the downward development of t the style in appearance by the strong emphasizing of unimportant things, an inclination toward the picturesque and endeavors for freedom from the law restricted to mathematical consistency.

With the 14 th century then appeared (in France) the expressed late Gothic. The choir lost its importance. It was preferred to omit the transverse aisle. In the structure the type of the hall church won preeminence. In stead of the clustered pier occurred piers with octagonal or round cross sections.

Where they were retained, the rounds pass directly into the r ribs without capitals. The construction and subdivision are refined; they permit the recognition of an animated and really mechanical enjoyment in technical show pieces and novel decorative treatment. (Fig. 123). In the ceilings the net vault became the rule, and which soon passed into the double curved r ribs. (Figs. 107, 161). Not rarely the network of ribs received a treatment like tracery of the windows, but it also sometimes degenerated entirely into knotty branched work. The resolution of the masses of the walls no longer had the force of the supreme grand principle; with the small openings in the walls appeared the inclination to form larger surfaces. The pointed arch no longer remains in unlimited control; it is recurved in the ogee arch, so characteristic for the late Gothic, (A in Fig. 124), which completely dominates the forms of the tracery gable, of the crownings of canopies, and the like. B Beside it the (circular) round arch again comes into use, the straight shouldered arch (B) on doorways, and on windows and doorways the drpressed (elliptical) round arch (C), the low segmental arch (D), and the inverted (curtain) arches (F' and F"), chiefly native in Saxony. For the French late Gothic is the round-cornered (eared) arch (F' and F") characteristic, a and for the English a depressed form of the pointed arch, the Tudor arch. (G). In the tracery occurs the fish bladder in i infinite variations. On the jambs of the portals beside the pointed rounds are again found small rounds that intersect at top like lattices. (Fig. 125). The entire mouldings also participate in these intersections. The rounds stand on small c cylindrical bases, that are decorated by all sorts of tracery, network and interlacings, or by spirally twisted flutes. Frequently stand before the portals independent porches with the richest ornamental and sculptured decoration. (Fig. 150). In the external architecture the representation of the slender and elongated is finally carried too far and the structural principle is suppressed. The ornamental members, crockets, cross-flowers and the like become stiff and appear as if withered. The finials ever become thinner and at last recall metal works. Generally only a single tower rises above the port-

portal of the western facade to a previously unattained height.
The entire technical and decorative treatment exhibits an ever
progressive independence from the formerly strict laws of art,
a constantly advancing freedom in the entire treatment of form.
It clearly shows us, that the late Gothic is already breathed
upon by the new spirit, foreign to the middle ages, that leads
to humanism and the Renaissance.



III. The Decorative Equipment.

Besides the ornamental forms depending on a geometrical bas-
is and directly resulting from the architectural treatment, t
the tracery, the pure ornament developed in plant and figure
motives plays only a modest part. The wealth of Romanesque
art in frieze decorations and conventionalized interlacings of
plants with interwoven figures no longer continues in the Got-
hic. In it the common enjoyment of nature leads to an import-
ant innovation, particularly to the adoption of quite natural-
ly treated foliage in the artistic expression of forms. Not
only on capitals but also on cornices, the jambs,of portals,
in vacant tympanums and in enclosed panels of surfaces, this
foliage and plant ornament found admission. Among the motiv-
es chosen for imitation, those representing the shoots and bu-
ds of the plant kingdom enjoyed greater favor than their devel-
oped forms. Frequently the approximation to the natural impr-
ession was even enhanced by painting. The entire early period
of Gothic is dominated by this purely naturally conceived pla-
nt ornament. In the best period and gradually introduced by
the pattern-like repetition of the architectural forms once o
obtained and with the endeavor for monumental treatment, the
already described (page 85) conventiolization, in the course
of which the recollection of the model, once taken from nature
directly, almost entirely disappears. (Fig. 126). Only the
last phase of the late Gothic on the portals and the frames of
panels again employs knobby,branches, that appear like a dire-
ct imitation of knotty natural woods. The execution of the o
ornament, the acute estimate of the effect from below, the jud-
ging of the proportions of the dimensions according to the pu-
rpose, the location, and particularly the progressive enlarge-
ment of the details with their increasing height, deserves our

highest astonishment.

Besides the ornamental work, sculpture took an active part in the decoration of Gothic churches. By the carving of gargoyles and the figures on balustrades and keystones (bosses), it solved a chiefly ornamental problem. But it rose to a higher conception, and in the statues, with which the portals, the galleries of statues (kings) and the finials treated as shrines. The compresion of statues into the narrow hollows led to too greatly elongated proportions of the bodies. From the endeavor to free itself from these restricting references to the architecture may be explained indeed the flexure sidewise peculiar to the Gothic figures. What is wanting to them in personal beauty in comparison to the antique works of sculpture or
98 is lost by the native costume, is frequently replaced by the expressive thought in the faces, that very fully manifests the feeling of the time as inclined toward sentimentality. In the interiors of churches the art of sculpture was chiefly abundantly occupied with the pulpits, rood screens, altars, and the tabernacles alone belonging to the Gothic period (Fig. 127), in their richer treatment. On them is strikingly shown, how the series of forms developed in architecture was directly transferred to the minor arts. The artistic certainty and the charming treatment of all details, that frequently distinguish their works in even the smallest village churches, manifest so justly the loving faith and self-denying piety of the high middle ages.

The Gothic did not favorably affect painting. Indeed it did not entirely reject colored ornament, since already it so expressively painted the columns, capitals, ribs and bosses with varied colors in order to enhance their effect. But for the larger comparisons, for fresco painting, there no longer remained any extended surfaces, at least in northern art. For the wall surfaces between the piers had been almost entirely resolved by the window openings and the triforiums, and the vault compartments were mostly unsuited for painted representations on account of their height. But so much the more grandly was developed a special branch of this art, the glass painting. Already in the Romanesque period occurred windows with representations of figures; but the Gothic brought it to its climax.

Its technics substantially consisted in the composition of figures with variously colored sheets of glass, cut out according to the drawing and set in leads. They were certainly limited originally to the production of mosaic patterns with cast glass of different colors (after the example of opus sectile; see volume 1, page 113). * Then men proceeded to produce figures by the same method of treatment, when the lines and shadings lying between the lead outlines were applied in strokes with a fusible brownish-black color . According to German documents glass windows with representations of figures already existed about 800 (in the old Benedictine church at Werden-o-Ruhr). The oldest now existing date from the second half of the 11 th century (windows in nave of cathedral of Augsburg). The colors consist of red, blue, green and dark yellow. In the 14 th century was added thereto the bright "silver yellow". At the same time changes in the style made themselves apparent. Men endeavored to model the bodies of figures; the figures received the Gothic flexure. They passed to important technical innovations at the beginning of the 15 th century. They had become acquainted with various fusible colors. Colorless glass sheets were coated these, they were burned in, producing the "uberfang" glass by grinding off in some places and then applying other colors, obtaining an extremely splendid and effective lighting and shading. In the Romanesque and early Gothic periods the paintings proper were enclosed in a roung frame a and thus insested in a window, otherwise treated with carpet patterns. The best and late periods of Gothic enclosed them in a canopy architecture, that chiefly covered the entire window. By the splendor of the colors, the technical treatment and the entire purport of the representations, which took their materials, first from the Bible and the legends of the saints, then from history, but also finally included the persons and families of the founders, the Gothic period created unusually interesting works in these glass windows, with high value in art and also in the history of civilization.

** From the inspired writings of the early mediaeval authors we know, that in middle and southern France already in the 5 th, 6 th and 7 th centuries, the churches were adorned by variously colored windows of glass mosaics.*

The great Gothic cathedrals vere frequently in architecture and decoration fail in the entire unity of the style. As a rule their erection required such long building periods, that the different phases of the style, in the course of its evolution from the early Gothic to the best period and the late G Gothic, can be very clearly followed according to the progress of the works from east to west and from below upwards. Certain principal structures were already commenced in the Romanesque period; others received their completion only in the latest time. Their arrangement in the different periods therefore can only follow with corresponding reservations.

IV. Spread into the different countries and the Monuments.

I. France.

The three periods of the Gothic style are designated as primary, secondary and tertiary in France, the land of its origin. If we here adhere to our former appellations and follow the g general course of its evolution on French soil, then is to be assigned to the early Gothic the second haff of the 12 th century, and to the best period the 13 th century. Late Gothic falls in the 14 th and 15 th centuries and disappears only after the first third of the 16 th century. In general the Gothic style in France develops no substantially indiwidual and national course; it appears more as an intellectual contemporary style, whose course we have already considered.

In the early Gothic (from 1150-1200) the earnest and heavy forms of Romanesque art still have great influence. The clearstory walls rest on round piers, from whose antique-like capitals rise the rounds. The ribs of the generally hexapartite cross vaults have the form of large rounds. (Fig. 106). In the windows usually remain round arches, and where the pointed arch appears in their place, the ornamental filling with mullions and tracery is omitted. In the ground plan the single or double choir aisle is the rule, either with a closely arranged series of chapels, or with entire or partial omission of these. The transepts frequently end in apses, so that the eastern end is treated in trefoil or triapsal plan. In the structure were still retained the galleries for structural reasons, but they disappeared with the gradual development of the buttress system.

The first great architectural work, that unites in itself a

all the basal traits of the Gothic style is the abbey church of S. Denis near Paris, whose choir and western facade, abbot Suger, the famous ecclesiastical prince, statesman and learned man, caused to be erected between 1137 and 1144. It has a double choir aisle and a circle of chapels with two facade towers, whose construction with buttresses, in great part still in Romanesque forms, permits the recognition of a new structural system. The model here given was directly followed by the cathedrals of Noyon, completed about 1167 (pages 77, 93), Laon (1174-1226) with three aisled nave and transepts and seven towers (page 93), and of Notre Dame at Paris (1163-1235). All still have in ground plan two squares of the side aisles to one bay of the middle aisle, and in the structure are galleries, triforiums and clearstories, so that they appear in four stories in the middle aisle. The western facade with two towers at Notre Dame (Fig. 128) has become typical for most French cathedrals. By bold horizontal belts and the insertion of the so-called gallery of the kings, containing the kings of Israel, beneath the story with the rose window and by a high triforium above this, the horizontal subdivision is strongly emphasized. It is retained as a peculiarity of French Gothic, a although not corresponding to its principles. Perhaps in this is to be seen one of the reasons, why most French cathedrals have undeveloped towers, for the spire is wanting to them. On the cathedral of Chartres, begun in 1130, only the two towers, between which lies the triple portal leading to the middle aisle, belong to the early Gothic building. The cathedral at Sens,(begun 1152), in which clustered piers alternate with pairs of slender columns, omits the galleries, and likewise the cathedral of Soissons (1175-1212), in which the bays are continuous as an important innovation for the further development of the Gothic system.

The best period (1200-1300) brings during the reign of S. L Louis (1226-1270) the classic age of French mediaeval art. All France was seized by a marvelous desire to build, that finds few parallels in the entire history of the world in the art, and which executed works on grand plans in the highest perfection. The prevailing system in the ground plan is composed of

two facade towers, a three aisled nave and transepts, a five aisled choir with single ambulatory and radially arranged polygonal chapels (as in the choir of the cathedral at Cologne, Fig. 153), with continuous bays. The galleries are constantly omitted. The upper wall below the clearstory is resolved into a triforium. In the tracery, particularly that of the rose w windows, the radiating figures are characterisiic, from which the architectural style of the period has received the name of radiating style (style rayonnant).

In northern France among the great number of important works, there stand at the head the cathedral of Chartres, rebuilt after the fire of the year 1194, excepting the two western towers, completed in 1260, that at Rheims (begun 1212, Fig. 97) w with famous facade, whose erecting commenced in 1251, the cathedral of Amiens, begun 1218 after the plan of Robert of Luzarches, the facades completed in the 15 th century, the grand c choir of the cathedral of Le Mans (1217-1254), the rebuilding of the abbey church of S. Denis (after 1231). The most mature and graceful creation of the French Gothic however, is the Sainte Chapelle at Paris (Fig. 129) erected by Pierre of Montereau for S. Louis in 1243-1248. It was designed for the preservation of the relics brought from the Holy Land, as a double chapel with three aisled lower and single aisled upper story. On its tall tracery windows with unusually magnificent glass paintings appears the tracery gable for the first time as an external termination.

In Normandy the buildings of the 13 th century still generally bear the dry and severe traits of the early Gothic, that corresponded better to the Norman character than the refined art of the national style. In the ground plan is omitted the extension od the choir chapel lying on the main axis. The piers are indeed richly clustered. But the capitals retain the early Gothic bud form. Tracery is wanting. The external architectural form is dominated by the strongly emphasized crossing tower, that rises higher than the facade towers. As the most important monuments are to be mentioned the cathedrals changed from earlier buildings, those of Rouen (Fig. 130), Bayeux, Lisieux, and the two chief works of high Gothic Norman art; the three aisled cathedral of Sees and the five aisled

one of Coutances.

In southern France, where formerly the antique and also the Romanesque style,continued in the same sense, had found such a favorable soil, the Gothic could only strike root very slowly. Besides through the religious and warlike disturbances t the south also remained behind the artistic development of the north. First in the 13 th century originated some expressly Gothic churches, the cathedral of Bourges, that exceptionally had a crypt, that of Clermont-Ferrand (begun 1268), the grand choirs of the cathedrals of Narbonne and of Toulouse; on them appeared the direct influence of the art of northern France. Not by time but by style belong still here also the churches of the 14 th century to the Gothic period, thus the transverse aisle of the cathedral of Bordeaux, the rich eastern building of S. Nazaire in Carcassonne and the cathedral of Albi with a single aisle, treated on the exterior like a fortress.

Likewise the buildings in Burgundy do not keep equal pace w with those of Picardy and the Isle de France. The stately church of Notre Dame at Dijon, completed 1240, still follows in its ground plan the restricted square system without choir aisle and circle of chapels, and it has yet round pillars with bud capitals, but allows the maturity of high Gothic to be recognized in the well calculated system of vaults and buttresses. The crurch of Notre Dame in Semur and the cathedrals of Auxerre and of Lausanne are similarly arranged and developed, but the latter has already introduced richly treated clustered piers.

The late Gothic (1300-1500) in a doctrinaire way firmuly adhered to the system transmitted from the best period, which it executed by an extreme slenderness and elegant lightness carried to the last results. The ground plan was preferably continued in the side aisles by parallel chapels. In elevation t the windows of the clearstory were carried into the very high triforium. The flying buttresses received a rich treatment. The entire external and internal architecture tended to a showy, graceful and refined ornamentation. The 14 th century in general remained within relatively modest limits. In view of the strenuous internal commotions and the war with England, m

many important undertakings in the great style fell into the background. Men indeed everywhere continued the previously a animated architectural activity, but limited this chiefly to completions, rebuildings and additions. To these belong as a prominent work the famous and magnificent tower of S. Pierre in Caen(after 1308). Of the more important new structures begun in the 14 th century, we have to mention the grand and nobly treated church of S. Ouen in Rouen (begun 1318). (Fig. 131). A more splendid revival was passed through by the mediaeval a art of France in the 15 th century. The architects of this t time still alwiys adhered to the standards of the early Gothic style in the plans and structures of churchesa Therefore they also employed only with hesitation and in the last stage the net vault, renouncing the organic development of pier and vaulted construction. But otherwise they intellectually sported with the structural principles of Gothic (Fig. 128) and utilized all variations of late Gothic forms of arches, among which besides the ogee arch and the keel arch a very flat oval arch was preferred, that is often so depressed, that it ends in a horizontal line, particularly in secular architecture, thus appearing merely as a half rectangle with rounded corners. The portals and windows were covered by the most luxuriant and even fanciful ornamentation. (Fig. 132). In tracery (after the beginning of the 15 th century) the flame-like and lengthwise elongated fish bladder and foil became characteristic. (Fig. 133). From these the entire French architecture of the 15 th century has received the name of flamboyant style. Among the numerous completions of structures during this time the west facade of the cathedral of Tours shows the late French Gothic in its clearest and most graceful treatment. As completed and pure creations of the flamboyant style appear the most elegantly treated church of S. Maclou at Rouen, begun in 1437 by Pierre Robin, S. Nicolas du Port near Nancy, and the church of S. Wulfram at Abbeville (after 1488), whose facade shows a crisped ornamentation. Here likewise belongs also the church of S. Maurice in Lille, originating in even the extreme north of France, which however by its plan as a five aisled hall church w with slender round columns occupies a separate place among the

French churches.

II. The Netherlands.

Since the conclusion of the Frankish agreement of division at Meersen(in the year 870), the Netherlands formed a German province, incorporated in the duchy of Lorraine. Only the ancient counties of Artois and Flanders belonged to France. After the dissolution of the duchy of Lorraine arose numerous c counties and duchies directly belonging to the empire, that a after 1384 were combined under the dukes of Burgundy and their heirs of the house of Hapsburg into a mighty kingdom, enclosed between Germany and the North Sea, which by wise politics and art love of its princes should for a century take an important part among the peoples of northern Europe. According to its geographical location and the racial peculiarities of its people, which in the north (Holland) were exclusively of german origin, and in the southwest bordering on France (Belgium), b but partly permeated by French blood, there are two architectural domains to be distinguished on the soil of the Netherlands. The southwest province was almost entirely under the influence of French-Burgundian cathedral architecture, even if there already German influences are not to be denied. But from the beginning the northeast followed more nearly the models afforded by German Gothic. In the 15 th century and under the independence of the Netherlands, strongly flourishing low German cities became the chief supporters of a great artistic movement of a chiefly German spirit.

In Belgium the architectural works continued in the forms of the transition style until the middle of the 13 th century. Then the choir aisle with the circle of chapels gradually found admission. But in the interior also further the stumpy round columns were yet preferred, from whose capitals rose the rounds to the vaults. In the external structure the masters only timidly and with hesitation approached the great wall openings and the buttress system of the contemporary high French Gothic, so that the system often appears as not consistently executed. Yet these works sometimes attain a high monumentality.

To the principal works belong:-- the cathedral of S. Gudule

at Brussels, begun about 1226, with a nave and series of chapels erected since 1350, whose facade received a tall window i instead of a rose window, and two massive towers, completed in the 15 th century. (Fig. 134). The Liebfrauen church in the city of Bruges, so rich in mediaeval buildings (choir built 1239-1297). The grand choir design of the cathedral of Tournai, built 1242-1338, began in the Romanesque style as a cross= shaped pier basilica. The Brabant cathedrals at Mechlin (after 1341) and at Louvain (after 1373), and particularly the imposing cathedral of Antwerp, begun 1352 (Fig. 135), of which the noble choir was still erected in the 14 th century, and t the northern one of the two towers was erected only in the year 1518 (by Dominicus van Waghemakere), while the southern remained unfinished. (Fig. 136). All these architectural works are arranged according to the cathedral ground plan with choir aisle and circle of chapels.

Likewise in Holland most large churches have the rich form of choir. Yet the tendency to simplify the system here makes itself apparent everywhere, while the circle of chapels is often omitted, so that the choir aisle has a polygonal termination. The triforiums also disappear. Instead of them are arranged balustrades as recesses below the clearstory windows, which extend down to a belt above the arcade and are covered by blind tracery. The ornamental forms preserve great simplicity everywhere. Already the materials at command, bricks in combination with cut stone, limited their free development. Vaulted construction likewise did not reach a rich development; for on the insecure building soil of the overflowed swampy low lands, great care in construction was required in reference to the strong side thrusts of stone vaults. Therefore from the first, men frequently adhered to wooden construction, that was often built in the form of vaults in a very interesting way. Even if the height did not keep equal pace with the widening of the nave, still grand internal effects were produced. In the external appearance occurs an expressed preference for slender towers (Fig. 137), where foundations met with less difficulty, since there it was only necessary to take precautions for a load acting vertically.

108 Greatest appears the Dutch Gothic in the cathedral at Utrecht,(built 1254-1267), whose five aisled nave was torn down by a storm in 1674 and was never rebuilt. The Old church at Amsterdam originated about 1300, and the five aisled church of S. Peter at Leyden (1315) with slender round columns, low side a aisles and wooden vaults display a tasteless Gothic of the 14 th century. The masters of the Liebfrauen church at Dordrecht also decided for the choir aisle with the circle of chapels a and also of the church of S. Stephan at Nymwegen, while the churches of Arnheim (after 1452) and of Delft, and likewise t the Great church at Harlem (Fig. 138), with merely a spire over the intersection of nave and transepts instead of a tower, terminates with a polygonal choir aisle. The 15 th century f further produced two great churches with rich choir plan and stone vaults, the Liebfrauen church at Breda and the five aisled cathedral of S. Jan at Herzogenbusch, begun after 1419. In Friesland and Groningen are further noteworthy some country churches from the 13 th and 14 th centuries with domical cross vaults, which manifestly have relations with the buildings of western France. Otherwise most Dutch buildings are brick structures with cut stone architectural members, round columns, and vaults constructed of wood.

III. England.

The British island kingdom was the first country, that received from France the Gothic style of architecture in its earliest stage of development. After the burning of the cathedral of Canterbury in the year 1174, the French architect William of Sens was called to England with the commission to lead in the rebuilding of the choir plan. He saw in the cathedral of
109 Sens (page 101) the most suitable model for this, and thus established the first Gothic building on English soil. But in this purely northern French conception, the transferred system prevailed but a very brief time. The English people willingly received the imparted impulses, but they wrought with the tenacious force peculiar to their national character and thus created a distinct national architectural style, that in accordance with its internal nature has maintained itself until our time.

In the ground plan (Fig. 139) then adhered also further to the former elongated plan of the Norman churches (page 60) with strongly projecting transepts and a rectangular choir without the circle of chapels. Frequently a second and sometimes a third transverse aisle in smaller dimensions is inserted, a and the choir is extended by the end chapels lying on the main axis, the lady chapel (S. Mary). The structure omits the strong organic development and the alternation of the pier and vault construction. The attention to the construction is exceeded by that paid to the decoration. The English masters still adhered to the conception of the Romanesque massive construction, to which by the new means of decoration they sought to give the impression of elegant lightness. In the height of the aisles they remain far inferior to the proportions of the buildings on the continent, so that for the much greater length, the impression of the interiors of the Gothic cathedrals in England is changed from that of those on the continent. * By frequent repetition of the pointed arch in the windows and in the blind tracery on the walls, men sought to accent the upward movement and to animate the wall surfaces. Therefore they preferred to arrange the windows in groups of two or three. The triforium extending above the arcade was generally developed as an intermediate gallery story.

** The middle aisle of the cathedral of Amiens had one third its length as height, but that of the cathedral of Salisbury is only the sixth part.*

Vaulted construction attained a quite extraordinary development. England became the home of the most showy star, net and fan vaults. (Fig. 140). These are indeed conceived in a purely ornamental sense. The ribs are usually not developed as extensions from compound piers, but rest on corbels on short rounds set on the piers. Generally the stone vaults form no indispensable requirement for the English cathedrals. Besides them remain in use indeed in most cases the wooden ceilings c common in Norman buildings, that also particularly corresponded to the island people, already well skilled in wooden construction by their shipbuilding. These were either horizontal beam ceilings, or they had the form of a gable roof, or even

that of a tunnel vault with Tudor arch section, richly decorated by painted and gilded carvings. (Fig. 141). Hence since in this manner a strong side thrust did not have to be reckoned with, as exerted by stone vaults, or that the erection of stone vaults was less effective on account of the smaller hei - ght, the design of the galleries and the greater thickness of the walls, the buttress system lost its importance. Flying b buttresses were frequently omitted. consequently the external appearance also materially differed from that of the French c cathedrals. The great elevated window is characteristic for the main facade. The vertical movement is strongly expressed by the tracery, but is always reduced by frequent horizontal members. At first, as in the Romanesque period, only a massive tower was built over the crossing. Facade towers first occur in the later period and mostly terminate with a platform. (Fig. 142). As an ending of the wall, the continuous series of battlements is peculiar to English Gothic.

We likewise have to distinguish here between three periods, the Early English until 1270, the Decorated style until 1370, and the Perpendicular style of the 15 th and 16 th centuries. The different epochs are chiefly characterized by the architectural treatment.

The Early English style (frog 1175 -1270) exhibits a careful judgment of the proportions of the masses and excellent restraint in ornamental work. In the interior is striking the separation in the arcade piers, peculiar to English art, when the massive nucleus is surrounded by four detached slender round columns. The latter stand on bases with usually circular plinths, which also recall cast iron columns by the extremely slender shafts and the low bell shaped capitals with round abacuses. The bell capital is usually decorated by plant stems w with conventionalized and lossely hanging leaves. Steep pointed arches, the so-called lancet arches, terminate the narrow windows. Only modest beginnings of tracery exist, and also of flying buttresses. To the Early English is also therefore lacking the light and airy structure of continental works; it appears more like a transition style with the Romanesque basis a and the ornamental use of new forms. Its most important crea-

creations are the facades of the cathedral of Peterborough (page 63), the cathedral of Lincoln (Figs. 139, 143), whose choir was begun in 1190 and was originally round with three radial chapels, but was made rectangular in the 13 th century, and whose nave (1209-1235) represents the mature Early English style. In this are found the first star vaults formed by fan-like radiation of the vault ribs. In the same time was built the cathedral of Wells with a wider facade, richly adorned by figures and flanked by two massive towers, a choir of the 15 th century and a chapter house, well known for its magnificent fan vaults. As the most important and perfect work of the Early style is to be considered the cathedral of Salisbury. Its eastern portion was erected from 1220-1250, the nave soon afterwards, and in the 14 th century the slender crossing tower, exceptionally crowned by a steep and massive pyramidal spire.

In the Decorated style (1270-1370) vividly appears the endeavor for greater development of the interior with improved construction, greater height and finer equipment. The ground plan retains its elongated form. To increase the perspective effect of the interior, the end wall of the choir is opened by a colossal window. In the tracery appear irregular foils, the fish bladder and flame-like forms (thus earlier than on the c continent). England likewise preceded in the erection of net vaults. But even in this period stone vaults enjoyed no advanced esteem; even in great cathedrals they were very frequently imitated by wooden construction. If flying buttresses were c constructed, they retained the simple wrought form. But the surfaces of the facade were richly subdivided by vertical mouldings. (Fig. 144).

In Westminster abbey church in London, begun in 1245 and completed about 1300, the new principles of the style appear. Yet many effects of French Gothic may be recognized in it, which manifest themselves particularly in the polygonal choir with a circle of chapels, unusual in England. The cathedral of York (nave completed 1335, choir begun 1361), a very monumentally executed structure in its external appearance, emphasized on the facades (Fig. 142) and in the interior by very decided verticalism, but the spacious middle aisle is only spanned by a wooden vault. It cannot pass as a model structure of the

rich style. The specific English conception is most purely r represented in the grand cathedral at Lichfield (Figs 144, 145), substantially erected in the 14 th century, on which we must mention the proud spires of the three towers as an exception to the rule, and which is distinguished by the richly subdivided clustered piers, arcade arches and ceiling vaults with ribs rising in fan-like form, and that at Hereford, where such a steep pointed arch is employed, that the spandrel almost appears as a straight line.

The Perpendicular style (1370-to about the middle of the 16 th century) is so called on account of the vertical line dominating the entire architectural and decorative treatment, and it energetically subdivided the closely joined clustered piers by vaulting rounds, that in part organically rise from the floor to the vaults. The triforiums were omitted, whereby the height of the side aisles was increased. Mullions and tracery with connecting horizontal bars cover the wall surfaces from the arcade to the vaults. In the windows the mullions mostly extend vertically to the soffit of the arch. The pointed arch loses its structural importance; it is depressed to the keel arch or recurved to an ogee arch. From 1450 the very low Tudor arch is at home in England, and this is again often enclosed by mouldings forming a right angle (label). (G in Fig. 124 and the portal arch in Fig. 147).

Hitherto still occurred in especially prominent buildings stone vaults in construction with an ever lower vaulting line, approximating the keel or Tudor arch, and fan-like ribs with overlaid tracery. (Fig. 148). How very greatly the structural idea was finally neglected in these appears in the fan vaults occurring in certain buildings with funnel-shaped suspended keystones. (Fig. 140). These are supported by iron rods, anchored into two free arches turned above each bay of the vault.

But about the middle of the 15 th century appeared a strong reaction in favor of wooden ceilings, which were developed in the most splendid manner, both as horizontal beam ceilings as well as in visible roof framework. (Fig. 141). The blind tracery richly extending over facades also gives to the external architectural appearance of the structures in the Perpendicul-

Perpendicular style their peculiar impression, quite particularly agreeing with the English national chahacter.

Already at the end of the 14 th century occurred the changes in the style at the rebuilding of the nave of the cathedral of Canterbury (1378-1411), and likewise on that of the cathedral of Winchester (after 1394; Fig. 146), whose interior under the influence of the tendencies of the Perpendicular style exhibits unusually slender proportions for English churches. By its rich choir stalls the cathedral at Chester is famous (1485-1490), whose beautiful southern side portal is reproduced in Fig. 147. The richest development of fan vaults constructed in stone is attained by the Perpendicular style in the chapel of S. George of the castle at Windsor, erected 1460-1483 (Fig. 140), in which the mouldings extend in bands like joiner's work over the walls, and in a still higher degree in the stately and even c capricious chapel of King's College in Cambridge (completed 1530; Fig. 148), and that of Henry VII in Westminster abbey in London. Of the more important buildings with rich wooden ceilings are yet to be mentioned the churches of S. Mary at Cambridge and at Bristol, and S. David in Wales, and Thinity church at Stratford-on-Avon.

The English cathedrals were frequently at the same time monastery churches and were then surrounded by great arrangements of buildings intended for monastery plans, among which the splendid chapter houses were arranged as purely Gothic central buildings. (See page 81 and ground plan K in Fig. 139). With them were also directly connected the establishment for learning. These occupied an important position in England and soon attained to high fame. For example, at the end of the 13 th century the learned schools at Oxford were attended by nearly 30,000 students, who were lodged as fellow associates in about 300 halls, hospitals and halls, later chiefly termed colleges. In these colleges with their expensive gates, charming forms of bay windows and colossal state halls covered by richly treated vaults and showy wooden ceilings, the Perpendicular style found that peculiar continuation, which it has retained until today in its principal traits as the "English Style".

IV. Scandinavia.

In Scandinavian lands the Gothic style reached no peculiar native development. On certain monuments predominate English, on others German influences, among the latter especially those, which come from northeast Germany. These soon crossed and adopted portions of the French form expressions, transmitted by stonecutters called in 1287 from France to Sweden. On the whole the art of the gothic middle ages in these northern lands has produced but few creations of importance.

In Norway the cathedral at Drontheim originated in the 13 th century (Fig. 149) and is to be mentioned (see page 42), whose splendid octagonal choir, the tomb of S. Olaf, is kept within the forms of the Early English Gothic of the first third of t the 13 th century, while the three aisled nave and the transversely arranged three aisled western building with two facade towers and rich treatment of the portal recalls the early German Gothic, but now only exists in ruins. The cathedral of S Stavanger (page 42) received (after 1272) a choir likewise built in the Early English Gothic style.

In Sweden the cathedral at Linköping forms the chief work of the period. The second building was erected (after 1232) in the transition period (the first was begun in 1150), but in i its third period was changed into a hall church with clustered piers and rich window tracery. In the building of the new choir with choir aisle and three radially arranged chapels for the last quarter of the 15 th century, a German master Gerlach from Cologne participated. The cathedral of Upsala was commenced in 1287 by the French architect Etienne de Bonneuil on the cathedral ground plan as a brick structure with cut stone decorations. The choir, buttress system and the clustered piers are arranged in French forms; the remaining architecture of t the nave and the stately facade with two towers rather follow the German models of the Baltic provinces (with the exception of the rose window likewise completed in 1435 under French influences. On the cathedral at Upsala also depends the cross= shaped plan of the cathedral at Skara, rebuilt in the 14 th century, and which exhibits in the end wall the rectangular c choir with a magnificent tracery window with six bays. Great-

Greater favor was enjoyed in southern Sweden by the system of the hall church, on which is also based the churches of the B Brigittine Order. As a model building of these is to be regarded the three aisled Brigittine church with rectangular choir at Wadstena, which was erected in blue stone between 1388 and 1430. In the extreme south of Sweden the church of S. Peter at Malmö and the Frauen church at Helsingborg, both with higher middle aisle, the former with five sided choir, choir aisle and circle of chapels, the latter with three sided choir aisle without chapels, adhered to the churches of north German brick Gothic.

V. Germany, Austria and Switzerland.

In Germany the Gothic did not appear as a direct continuation of the transition style, but it penetrated from France in the course of the 13 th century as a completed art style, yet it attained in the great German cathedrals the highest measure of artistic development of which it was capable in general. The numerous residence cities of the different princes and the free cities of the Rhenish and Swabian federation of cities a and of the Hansa became the centres of a business, intellectual and artistic life, which found its most prominent activity in the domain of architecture. Under the influence of the German spirit the Gothic style still adopted many peculiar traits, even if the ground plan and the form treatment were also kept within the limits of the early determined development.

For the plan of the choir, the arrangement of the choir aisle with a circle of chapels did not attain supremacy in the measure, such as was the case in France. Less attention had to be paid to the clergy, since bishops' seats existed in Germany in much smaller numbers. Therefore men decided preferably for the plan of a polygonal choir apse for each aisle, or even in large churches were satisfied with a simple choir without a choir aisle. Likewise in the development in height the dominating height of the middle aisle was mostly omitted. The equal or nearly equal heights of all three aisles corresponded to the secular feeling of the Germans for plain simplicity better, than the rich graduation and subdivision of the basilican system. Thus the hall design in city parish churches was bet-

better suited as interiors for preaching and came into preferred use, particularly in the best and the late periods.

In the treatment of the facade was rejected the horizontal subdivision, still peculiar to the French style, and which did not correspond to the nature of Gothic. The German masters h here went to the last result and emphasized verticalism by the elevated painted windows over the main entrance (instead of t the French rose window) and by the interruption of the cornice by the buttresses. The German Gothic attained its completest development in the particularly characteristic architecture of towers, which produced truly grand works of the highest importance, both on facades with two towers, and also especially w when the entire strength was concentrated on a single tower.

Of the three periods of the Gothic style, the early Gothic **had a relatively brief duration,** since the Gothic style had a already reached its climax beyond the Vosges mountains at the time of its entrance into Germany. It appeared from 1220 onward in certain monuments (cathedral at Magdeburg, Liebfrauen church at Treves, church of S. Elisabeth at Marburg; see pages 126, 120), but first came into general use about 1250. The e early German Gothic is characterized by:- simply treated piers of mostly square or round cross section, with projecting half columns, rounds in the ribs, and the simple tracery in chiefly circular forms; windows divided in two parts with small and g graceful columns in the jambs and mullions; natural forms of leaves on the capitals; gablet caps of buttresses,and the execution of flying buttresses in simply cut forms.

About 1300 set in the high Gothic (best period) with richly clustered piers, the equilateral pointed arch (described on an equilateral triangle) in doorways, windows and arcades, finely divided tracery, whose openings however were still early composed of geometrical figures in the most diverse variations. The jambs were moulded at each side as deeply hollowed rectangular bands (without projecting rounds), and the vault ribs were profiled in pear shape. The natural forms of the ornaments were conventionalized. The buttresses received caps with finials, and the flying buttresses had an architectural development. Tower architecture is treated in a grand manner.

The late Gothic prevails in the entire 15 th century. It f favored the hall type of church without transepts, preferred to replace the clustered pier by round or octagonal supports, mostly omitting rounds and capitals, so that the ribs directly intersect the piers and walls. The architecture results in a very rich and purely ornamentally conceived form of vaults (s (star, net and fan vaults, doubly curved ribs),and employs by preference the ogee arch in perforated gables, depressed and shouldered arches in windows, the fish bladder in tracery, latticed intersections of mouldings in columns, knobby, withered and strongly conventionalized foliage in the ornaments. The portals were preferably furnished with expensive and splendidly treated porches (Fig. 150).

At the end of the 15 th century there appeared scattered Renaissance forms from the South, in increasing measure after 1500; until the middle of the 16 th century, these were mingled with late Gothic forms, which slowly and entirely disappeared as a result, first in the 17 th century in many places.

The wealth of Gothic monuments on German soil is extremely great, so that on account of the limited space, we can only m mention the most important works in this grouping, according to the different architectural provinces.

In the Rhine country the already mentioned (page 81) Liebfrauen church at Treves (1227-1250) is the first entirely executed as Gothic, and a church structure particularly interesting by its form of ground plan as a central design, which in a spirited way utilizes the motive given in the choir of the early Gothic church of S. Yved at Braisne (near Paris; Fig. 151). It was followed by the church of S. Elisabeth at Marburg (1235-1 1283), a hall design on a cross-shaped ground plan with three polygonal choirs as the termination of the three aisled nave, with the two (single aisled) transverse wings and two facade towers with massive pointed spires, the entire execution being in simple and noble forms. The foundation church at Wimpfen-i-T, 1262-1278, erected by an architect returned from Paris (in opus francigenum), is a cross-shaped basilica with two Romanesque western towers from an earlier central building. Of the great cathedral at Strasburg (page 86), whose mighty impression

Goethe once described with such inspiration, the three aisled basilican and spacious nave (Fig. 152), was built 1250-1275, then the famous facade, the masterpiece of Erwin of Steinbach (died 1318), and in the 15 th century the completed stone spire of the tower by Johann Hültz from Cologne in 1439, on the whole inorganic, but rising to a height of 465.9 ft. from the substructure (foundation). On the minster at Freiburg-i-B, (page 38), the likewise basilican and three aisled nave was begun in 1253, and in 1354 the noble choir built after the plans of Johann of Gmund, with the French cathedral ground plan, having choir aisle and a circle of chapels (only completed in 1513). The western tower was placed on a simple square substructure, and wonderfully treated above, was in 1301 carried up above t the bell story. In beauty of proportions it was equaled by no other one; it forms the "highest and clearest expression of t the Gothic idea".(Fig. 98). The most most unified and greatest, pure in matured Gothic forms as if executed with one inspiration, architectural work is formed by the cathedral at Cologne, in dimensions surpassing nearly all other French and German c churches, founded in the year 1248. (Fig. 153). The choir was completed in 1322 entirely after the type of French cathedral ground plans of the best period (page 101). It almost completely coincides with that of the cathedral of Amiens. The plan for the cathedral certainly was by master Gerard. The three aisled transepts projecting from the side walls by two bays a and the five aisled nave were probably commenced after 1322 a and continued until 1450. Then occurred a pause for nearly four hundred years in the building operations. Only in the 19 th century the nave and the two colossal western towers were completed after the rediscovered ancient plans and with the spirited participation of the entire German nation. Of the other more important buildings of the early and the best periods, the magnificent monastery church at Altenberg-o-D (1225-1267) follows French models. On the cathedral of S. Victor in Xanten the choir plan is formed like one half the Liebfrauen church at Treves. In Hesse the church of S. Elisabeth at Marburg influences a series of buildings, among which are the principal church at Alsfeld, the foundation church at Wetzlar and the

city church at Friedberg. The charming church of S. Catherine at Oppenheim (1262-1317) agrees in the choir plan by the diagonally placed chapels with the Liebfrauen church at Treves, b but follows the cathedral of Cologne in its rich buttress system, to whose school is likewise to be referred the grand choir building of the minster at Aix-la-Chapelle (see volume 1, page 177). In the 15 th century originated the Liebfrauen church at Worms-o-R, a cross-shaped basilica with choir aisle a and two facade towers, and the church of S. Willibrod at Wesel, a heavy five aisled basilica with transepts; these go so far in richness of the treatment of the ceiling, that in the southern side aisle two systems of ribs are arranged above each other, the lower ones extending as a network over the true ceiling. Of the churches in Alsace-Lorraine, the cathedral of Metz (Fig. 154), substantially erected during the 14 th century, directly refers to French models, particularly of Rheims. The minster at Schlettstadt is a work of the early period, and likewise S. Martin in Colmar with the western facade completed in the 15 th century, also the church at Rufach. The matured and late Gothic style is represented by the church of Thann.

In southern Germany one of the first Gothic buildings is the basilican nave of the church of S. Sebald at Nuremburg, erected in the second half of the 13 th century. Frog 1361 -1378 was added to it the spacious eastern choir as a hall design. Likewise the nave of the church of S. Lorenz there, arranged without transepts (from the second half of the 13 th century) still has the basilican plan and a very beautiful hall choir, Built in 1445-1472 after the plan of the cathedral architect, Conrad Roritzer of Regensburg. The facade with two towers retains a noble simplicity. (Fig. 155). The first complete hall church of Nuremberg is the three aisled Frauen church with s square plan with single aisled choir, erected 1355-1361, rich gable and splendid two story vestibule. There follow it the extremely richly decorated chapel of S. Mary at Würzburg (after 1377), as well as the church of S. Martin at Landshut (begun before 1392), the Frauen church in Ingoldstadt (begun 1425, completed about 1500), and the Frauen church at Munich, built 1468-1488. The three buildings last mentioned were built in

the brickwork usual in the region, in severe and somewhat tasteless treatment of the forms, but with grand and enclosed internal effect. In Augsburg a master of late Gothic, Burkhard Engelberger, again attempted the earlier scheme of the cross basilica in the church of S. Ulrich (1464-1499), with luxuriant treatment in the latest forms of the Gothic style. To the French cathedral system returns the monastery church of the neighboring Kaisheim (1352-1387), a basilican cross plan with double choir aisles, the outer one of which is divided in chapels. At Regensburg in the cathedral was carried out (after 1275) the chief work of Bavarian Gothic with an early Gothic choir of three polygonal apses arranged after the German manner, basilican nave in three aisles from the 14 th century and a western building (Fig. 156) with a triangular porch from the 15 th century, but the stately pair of towers were first completed in the second half of the 19 th century. A peculiar place among the Gothic churches of Bavaria is occupied by the twelve sided central building enclosed by low polygonal chapels, of the monastery church at Ettal in the Bavarian Alps, founded in 1330 by the emperor Louis the Bavarian, perhaps with the purpose of erecting a temple of the Graal after Wilhelm v von Eschenbach's Titurel.

In Swabia the already mentioned foundation church at Wimpfen= i-T. (page 120) is followed by the church of S. Mary at Reutlingen (1247-1343), a basilican, spacious and nobly treated city church of the early Gothic style. As a peculiar creation for the later Swabian churches was the church of Heilige Kreutz in Schwäbisch-Gmünd, erected by Heinrich Parler (Arler) * as a hall structure with hall choir, begun about 1330, the choir building in 1351, and completed in 1521. It is a very stately three aisled design, whose nave is separated by slightly projecting transverse aisle from the elongated choir. This h has a choir aisle with a circle of chapels between the buttresses, which are drawn inward. Complicated star and net vaults, that rise above slender round piers with low capitals, cover all interiors(Fig. 157); rich ornament in relief enhances the dignified general impression. The same system, but with simpler choir ending, is found in the extremely graceful Frauen c

church at Esslingen, begun 1324, (Fig. 158), in the erection of which with its splendid tower were engaged the most important Swabian masters (Ulrich of Ensingen, Matthäus Ensinger and Hans Böblinger). Here further belong the hall churches of S. Michael at Schwäbisch-Gmünd and S. George at Nordlingen and at Dinkelsbühl, also with hall choirs, while the foundation c church at Stuttgardt decides for the earlier form of choir, a after the example of the Frauen church at Esslingen. To a great work of the first rank the Swabian school of architecture rose in the minster at Ulm. In this building erected as a city parish church was to arise an unequaled monument of the independent and heaven-aspiring sense of the citizens of the city on the Danube, in that powerfully aroused time of the late middle ages. Designed originally (1377) as a hall plan with three aisles of equal width by masters from the Gmünd family of Parler, the building was transformed into a five aisled basilica without transverse aisle and with an elongated choir ending in a half decagon, by Ulrich of Ensingen, the greatest German architect of his time, who was also employed in Milan, Strasburg and Esslingen, taking charge of the building in Ulm in 1392. The side aisles were completed in the year 1500, and the magnificent spire of the imposing western tower, which by its height of 528.2 pt. rises about 16.4 ft. higher than the t towers of Cologne cathedral and thus becomes the highest tower in the world, was only completed in the year 1890, according to the preserved designs by Matthäus Böblinger. To the Swabian master Matthias of Ensingen, the son of the above mentioned Ulrich, is also due the minster at Berne, a pier basilica without transepts and with a strongly projecting porch opening by three great arches, and with moderate facade towers.

* *See page 126 under the note. That Heinrich Parler may pass as the builder of the Kreutz church is certainly an assumption, whose correctness is not yet demonstrated against all objections. (See Dehio, Handbuch der deutschen Kunstdenkmäler. Vol. 3. page 147).*

In Austria the hall type prevailed after the middle of the 14 th century. It was already represented in 1295 by the magnificent choir at Heiligenkreutz, then in 1300 by the Augustin-

Augustinian church at Vienna, and at the same time by the famous cathedral of S. Stephen there, one of the most important works of German Gothic. The three aisled nave passes into a similar choir (dedicated 1340) with a polygonal termination of the aisles after the south German manner. In stead of the transepts are arranged two towers, of which oncy that on the south side was built in a slender pyramidal form rising directly from the ground (dedicated 1433). An example of the splendid internal treatment is given by Fig. 159. In Bohemia the cathedral of S. Veit on the Hradschin at Prague (Fig. 160) is the chief work of the Gothic period. It was begun in the year 1344 by master Matthias of Arras, called from France by the e emperor Charles IV, as a cross-shaped basilica in a grand style after the model of the cathedral of Narbonne with round choir, choir aisle and circle of chapels. After his death in the year 1352 the control of the building passed to the Swabian master Peter Parler, son of master Heinrich of Gmünd. * The latter was employed for 40 years on the structure, completed the choir in 1385, and commenced the massive tower structure, which took its place over the south transept as at the cathedral of S. Stephen in Vienna, but was only finished later. To the same master is also referred the church of S. Barbara at Kuttenberg (begun 1386), an originally three aisled and later five aisled basilica with high middle aisle vaulted with doubly curved ribs (Fig. 161), a low choir aisle between the buttresses, which are moved inward, and rich buttress system with doubled flying buttresses, but without facade towers. To the school of this master also belongs the Karlshofer church in Prague (founded 1351). On this the nave system is connected with the central design, since the nave adjoins an octagonal structure, that was perhaps influenced by the imperial chapel at Aix-la-Chapelle. The domical stone vault covering it appears as a highly important structural work.

** In some works on the history of art the master succeeding Matthias of Arras as architect of the cathedral of S. Veit in Prague is named Peter Arler. This appellation has been demonstrated to be a jocose falsification of the Swabian name of "Parler".*

In middle Germany some architectural monuments already mentioned among the works of the transition style take an important part in the development of the Gothic style. Of basal importance was the cathedral at Magdeburg. (Page 33). It still received the Romanesque ground plan, but with the French form of choir with choir aisle and circle of chapels. Its structure was begun in the old forms but carried on after 1220 in the Gothic style; only in the 14 th century was it partly completed in late Gothic forms. Likewise the construction of the cathedral at halberstadt (Fig. 162) continues through the 13 th, 14 th and 15 th centuries. The cathedral at Naumburg received about 1270 its early Gothic western choir. At about the same time the cathedral at Meissen was founded as a basilican plan with transverse aisle, whose nave was changed into a hall church in the 14 th century. The like change was experienced in the 14 th century by the spacious church of S. Mary at Mühlhausen in Thuringia, now with five aisles, and in the second half of the 15 th century by the three aisled cathedral at Erfurt, enthroned on a massive substructure. The late period further produced a connected group of hall churches in the east of middle Germany, that exhibit the octagonal piers with hollowed sides (shallow flutes) and the shouldered arch (page 96) in the windows as special peculiarities. Here belong the church of S. John in Plauen (1450), the church of S. Maria in Zwickau (after 1465), the cathedral at Freiberg-i-S. (after 1485), the Anna church in Annaberg (1499), the Wolfgang church in Schneeberg (1515), the City church at Pirna (after 1502) and the Castle church at Chemnitz (1514-1525).

In Westphalia the hall form is the expressed native type of building. We have already referred to the cathedrals at Paderborn and Minden (page 34). The latter can also be counted among the chief works of early Gothic on account of its spaciousness and the magnificent decoration of its nave with rich blind tracery. In the 14 th century, there originated as model hall churches with nearly square ground plans the church of S. Maria at Herford and the Wiesen church at Soest, that carried to the extreme result the Gothic principle of construction by omitting the capitals etc. A form of larger ground plan after

the model of the Hessian churches is shown by the Liebfrauen church at Münster and the Catharine church at Osnabrück. The two aisled porch erected in 1469-1474 in the place of the northern side aisle of the cathedral at Brunswick (Fig. 163) is a characteristic show piece of mechanical and technical ability of stonecutters in the late Gothic period.

The north German lowlands occupy a separate place in the evolution of the Gothic style, because its forms are changed into brickwork, the ancient native material. With the splendid Cistercian church at Chorin in Brandenburg (1274-1334) appears a fresh brick Gothic, true to the material, that was further developed by the mendicant Orders succeeding the Cistercians. The latter brought into use particularly the hall construction. On the church of S. Maria in Neubrandenburg, dedicated 1298, the detached mullions and tracery recall the gable on the Strasburg minster. In a similar manner, but considerably richer in treatment is the great show gable concealing the three aisles of the church of S. Maria at Prenzlau (1328-1340), on which red and dark glazed bricks alternate. It characterizes most strikingly the special style of the Mark. The matured rich style of brick Gothic at the change from the 14 th to the 15 th century is represented by the church of S. Maria at Königsberg in the Neumark (tower from 1458), and the Catherine church at Brandenburg. The Stephen church in Tangermünde (after 1470) is old, transformed into a Gothic basilaca with choir, transverse aisle and chapel. To the 15 th century also belong the two splendid principal churches at Stendal, the cathedral and the church of S. Maria, both hall churches with two western towers.

In the Baltic provinces the brick Gothic developed a luxuriant magnificence, especially in the Hansa cities. Men there left the French cathedral ground plan with choir aisle and circle of chapels and erected the buildings according to the basilican scheme, whereby the surfaces of the facades were animated by an alternation of black glazed and colored bricks, sometimes also by blind tracery on a white ground. The ornamental decorations were in terra cotta (Fig. 164). Thus originated the church of S. Maria at Lübeck (1270-1310), the church of S.

Maria at Rostock in the 14 th century, the churches of S. Maria and of S. Nicolas at Wismar, the churches of S. Nicolas at Greifswald and at Stralsund, and among monastery churches the charming Cistercian church at Doberan. The hall system is represented by the church of S. Johann at Thorn, begun in 1260, and by a very rich monument in the cathedral at Frauenberg, c completed 1388. The two great hall churches of S. Peter at L Lübeck, five aisled, and of S. Maria at Danzig, a three aisled plan, are in their essential architectural parts, works of the late Gothic of the 15 th century.

VI. Italy.

Already about 1200, and thus at a time when the Gothic in France had not reached full maturity, its style of art also p penetrated from France into Italy by the mediation of the Cistercians. But what characterized the northern Gothic, the resolution of the masses, the buttress system and the tendency toward height, were not adopted by the Italian masters. To t their inborn art feeling, strengthened by many centuries of e exercist corresponded only wide interiors of moderate height and a horizontal subdivision of the masses. And yet the general spirit of the time influenced them so strongly, that supported by the particularly strong influence of the Cistercians in Italy and that of the succeeding mendicant Orders, it brought about 1250 a complete break with antique traditions, which continued until the end of the 14 th century. In the pointed arch was presented a welcome means of covering as wide interiors as possible. But the wall surfaces retained their southern privilege on account of the expressed enjoyment of monumental paintings. The wide-arched middle aisle with like placing of the supports and high side aisles, over which in the clearstory remained only space for small and frequently circular w windows, that were still sufficient beneath the southern sky, produced a wonderfully harmonious internal effect, that exhibits an individuality totally different from the narrow and lofty cathedrals of the North. (Compare Figs. 168 and 170 with 130). In reference to the creation of the interior, the greatest was undertaken on Italian soil; for no cathedral of the North equals that of S. Petronio or of the cathedral of Milan.

The architectural treatment but seldom shows the strict Gothic principle; this remained unknown to most Italian architects. The polygonal pier was far more simply treated, mostly without regard to the direct relations of the rounds and the plan of the vaults. On the relatively strongly developed capitals is but exceptionally found natural foliage, and so much more commonly the bud forms of the transition style with leaf shapes, that still recall the acanthus. The window tracery assumes a flat character. To the entire exterior is lacking the rich s subdivision in the sense of the northern Gothic. The low and thereby light roofs of the South make lower side walls and the buttress system is unnecessary. The flying buttress can be e entirely omitted in view of the higher side aisles, in consequence of which the clearstory walls extend but little above t the side aisles; the buttresses assume more the character of Romanesque wall strips. Not infrequently are iron rods and even anchored wooden beams inserted at the imposts of the vaults to receive their side thrust. (Fig. 170). Towers were not included in the general organism. One bell tower stood beside the building as if detached. (Fig. 171). In the development of the facade only chiefly the pointed arches, triforium, the pattern-like tracery gables and finials with imitations of the crockets and cross-flowers recall the northern Gothic. Very frequently is employed a means foreign to the nature of the s style, facings of marble in different colors. The western facade was treated as a particular show piece. The enjoyment of the Italians in ornamental accessories rose here to an extravagant abundance of sculptured and mosaic decoration. (Fig. 169). In the ground plan occurred the cathedral type in comparatively small measure. The churches influenced by the Cistercians and Franciscans generally have the rectangular enclosed choir with similar side chapels. This choir plan in north Italy is joined by a three aisled vaulted nave, in Tuscany and Umbria by a single aisled nave with visible roof framework.

In the development of Italian-Gothic art lower Italy indeed precedes in time. The abbey church of the Cistercians at Fossanuova, erected by French architects after French models (abbey church at Pontigni, page 46), was already dedicated in 1208.

Its influence may be followed in numerous churches between the Tuscan and Adriatic Seas, in the south to Calabria (Cosenza) .nd in the north to Tuscany (Siena). But the chief region for the development of Itialian-Gothic art lies in upper and middle Italy, particularly in Lombardy, in Tuscany and in adjacent Umbria.

In upper Italy S. Andrea at Vercelli (after 1219) is the oldest Gothic church. Its clustered columns and buttresses permit the recognition of the direct influence of Parisian early Gothic. In the second quarter of the 13 th century was located the great architectural activity of the Franciscans, and in the last quarter was that of the Dominicans. S. Francesco in Bologna (after 1246) represents the cathedral type with choir aisle and square chapels (like the abbey church at Pontigny in Burgundy). The nave still followsthe restricted system of vaulting. The same form of choir is shown by S. Antonio in Padua. (1232-1307). In the vaulting of the nave and transverse aisle are expressed here the strong influence of the domed system of S. Marco in Venice. About the end of the 13 th century vaulted churches became more common. The piers became round and received octagonal abacuses. Then arose S. Lorenzo in Vicenza (1280), the Franciscan church dei Frari (1330 and the Dominican church of S. Giovanni e Paolo in Venice (1333). S. Maria del Carmine in Padua (begun 1373) retains the Lombard construction with square bays. The facade is the noblest example of the early Gothic style of upper Italy.

An independent position is taken by the famous church of the Certosa (Carthusian monastery) near Pavia (Fig. 165), built a after 1346 by Marco di Campione as a three aisled plan with chapels at both sides of the nave, transverse aisle and choir, the latter arranged as three equal arms of the cross and terminating in trefoil form with three apses. The vaults are pointed. But in the arcades and windows are already found the round arches of the early Renaissance, which presents one of its finest and most magnificent works in the noble marble facade.

To the founder of the Certosa, duke Galeazzo Visconti,is also to be referred the principal church in the Gothic of upper Italy, the cathedral of Milan. It was commenced in 1386 as a cross-shaped plan with five aisled nave in the basilican char-

basilican character, but without clearstories. The two outer side aisles are considerably lower than the middle one; the transepts are three aisled, the choir octagonal with choir aisle and without the circle of chapels. In its entire structure with clustered piers and developed system of buttresses is expressed the influence of northern art much more strongly than in the other Gothic cathedrals of Italy. During the erection of the building German masters were frequently called in, like Heinrich Parler of Gmünd and Ulrich of Ensingen (see page 124), when the Italian architects helplessly attacked the resulting structural difficulties. The colossal structure reached completion first in the 19 th century, after it had received many additions in later times, foreign to its style forms. But in its entire external architecture, executed in noble white marble, the Milanese cathedral appears as a luxuriant conservatory of the richest sculptured ornamental work (Fig. 166), that covers the nowise harmonious organism of the building like a splendid state garment. Yet far greater than the cathedral of Milan, whose internal area is equaled by no other Gothic church in the world, the rich city of Bologna conceived the idea of establishing a church dedicated to its greatly venerated protecting saint, S. Petronio. According to the plan designed by Antonio di Vicenzio of Bologna with the assistance of Fra Andrea Manfredi, a colossal structure of unheard of dimensions should arise with a length of 708.7 ft. and a width of 355.6 ft. across the transepts. (The corresponding dimensions of the Milanese cathedral are 485.3 and 288.7 ft.), as a three aisled basilica of the cathedral type, yet with square chapels (according to the precedent of S. Francesco there, see page 132), which should also extend along both sides of the transepts and of the nave. Unfortunately only the nave came to be erected. Political occurrences and the beginning of the Renaissance brought the building to a stand. In the year 1647 it was decided to not continue the work further and to terminate the nave by a small choir niche. But even as a fragment, S. Petronio presents to us the most perfect interior in Italian Gothic. Of the small Gothic churches of upper Italy, S. Maria in Strada at Monza (after 1393) affords an attractive example. (Fig. 167).

In middle Italy already in 1228, thus at a time when Germany could show no real Gothic principal churches, one of the chief Gothic churches of Italy was founded in S. Frencesco at Assizi. The high terraced site was utilized for the construction of a lower church, over which rises a single aisled upper church, consisting of five square bays, of which the eastern one is extended by an altar apse, and at both sides by somewhat smaller bays forming transepts. Bold wall piers, subdivided in the sense of the northern architecture, support the cross vaults and their ribs, treated as wide moulded supports. The effect of this unified and undivided interior is uncommonly dignified and imposing, being supported by the artistically very important frescos. The churches built by the Franciscans, of S. Francesco at Siena, Pistoja, Pisa and Cortona have the ground p plan of the monastery churches of the Cistercians with square and cross vaulted choir, that is flanked by similarly arranged small chapels. Their most important and truly grand work is the great church of S. Croce in Florence, begun in 1294 after the plans of the cathedral architect Arnolfo di Cambio as a three aisled and spacious basilica with transepts, which are enlarged on the eastern side by ten chapels, whocse centre is occupied by the polygonal choir. The interior exhibits in the middle and side aisles the visible framework of the roof.(Fig. 168). The dazzling white marble facade is a work of the 19 th century executed after an old design.

Otherwise the churches of the mendicant Orders are externally plain rough brick buildings, whose facades still await their facings. The Dominicans followed basal principles similar to those of the Franciscans, but besides the single and three aisled churches with visible roof framework also created such with vaults, and originated the beautiful three aisled and vaulted and cross-shaped basilica of S. Maria Novella in Florence, begun in 1278 by the Dominicans Sisto and Ristori, completed in 1357 by Jacopo Talenti. It is the noblest work of Tuscan Gothic. * Its system is afterwards met with in the cathedral of Arezzo, located farther south. Giovanni Pisano erected in Pisa the famous Campo Santo (1278-1283) a rectangular cloister surrounded by portocos internally beside the cathedral. The

little church of S. Maria della Spina there was built in 1230 and enlarged in 1323 has a rich marble show facade, on which the luxuriant finals are quite loosely placed.

The epoch-making chief creations of the Gothic in middle Italy are the great cathedrals of Siena, Orvieto and Florence. The cathedral at Siena was begun before 1250 as a three aisled nave with similar transepts and a choir, that appears as a continuation of the nave and ends in rectangular form. The piers with square nucleus and four half columns are faced with alternate courses of white and darkgreen marble. The entire interior is covered by round arched cross vaults; over the intersection of the nave and the transepts rises an inorganically placed dome over a hexagon set diagonally and changing above into a twelve-sided polygon. A true masterpiece is the facade designed by Giovanni Pisano in 1284, executed in light, dark and red marbles, furnished with overrich sculptures, on which scarcely one stone remains without ornament. (Fig. 169).

* *Michael Angelo was so enraptured by the church of S. Maria Novella, that he called it his bride.*

In striking contrast to it is executed the facade of the cathedral of Orvieto. The building was commenced before 1285 a and from 1310 was carried on by the Siena architect Lorenzo M Maitani. The architectural members here have somewhat reduced projections in favor of an unusually rich and splendidly colored mosaic ornamentation. Not only do the tympanums and wall panels gleam with figure compositions on a gold ground in glowing splendor (indeed but partially belonging to the 14 th century), but also all purely structural members, even the finials are covered by mosaic decoration. The interior is a three aisled columnar basilica with visible ornamented roof framing over the nave and vaulted transepts and choir, that terminates just like that in Siena.

The cathedral in Florence was begun in 1296 by Arnolfo di C Cambio, was interrupted repeatedly, and after long conferences and several competitions was completed in the year 1462 by different masters, among whom are to be named the famous painter Giotto di Bondone, Francesco Talenti, and the great Roman master Filippo Brunelleschi. The great aim of the Florentines w was to establish in it a work, which should surpass all other

churches of Italy. The ground plan is composed of a three aisled nave with four continuous bays and a central structure, t that consists of an octagonal domed space and of three polygonal apses occupying the places of the transepts and choir. T The apses are each enlarged by five square chapels lying between the buttresses, that are drawn inward. In the structure the Gothic style assumes an expressed Italian character, where the ornamental forms of the Gothic are fused with antique subdivisions and arrangement of lines. The interior (Fig. 170) is more effective by the bold proportions of the arches of wide span, than by the perfect harmony of all parts, the exterior by the facing with white and dark green marble slabs. The main facade was even commenced in the 14 th century, was richly adorned by statues and reliefs, but in 1587 as being"opposed to" architectural rules and reason", it was removed and only erected anew in the last quarter of the 19 th century with reference to the ancient plans. In perfected beauty parades the bell tower erected beside the cathedral. (Fig. 171). Giotto designed the plans in 1334, which were also retained in general by the later architects. The tower rises from a square ground area undiminished to a height of 275.6 ft., and indeed has an enrapturing effect by its dignified marbel covering, finely treated cornices, and the rich handling of the windows, ever becoming larger upwards. (Fig. 172).

All these churches belong to the basilican type. The hall system is only represented in the Gothic period in Italy in t thecathedral of Perugia with three aisles of equal height, after the northern manner (as in the church of S. Elisabeth at Marburg). It was begun in 1300, but probably first transformed into a Gothic hall church by its rebuilding in 1447. To the 15 th century likewise belongs the cathedral of Pienza, w which on the order of the Pope was imitated from an Austrian hall church, but only appears Gothic in the ground plan and the treatment of the vaults, while the architectural details and the facades already exhibit the forms of the early Renaissance.

The capital city of Rome remained far behind in the rich and great architectural activity of the cities of upper and middle

Italy, on account of the unfoavorable political conditions -- the noble families were in strong enmity in the Gothic period with each other, the people and the Papacy. The Cosmati (page 53) indeed enriched their minor architectural works with Gothic forms, and had created magnificent works, with which furthermore the works of Florentine masters competed even on Roman soil. The single great architectural work of Gothic in Rome is the vaulted church of S. Maria sopra Minerva, erected after 1280 by the Dominicans, whose three aisled nave is enlarged by side chapels, and whose transepts likewise end in choir chapels, the middle one terminating with a semicircular apse.

In lower Italy the dry early Gothic developed in the time of the Hohenstaufens, but still rather remaining in the transition stage, was introduced by the Cistercian church at Fossanuccva (page 131), under the French monarchs of the house of Anjou (1266-1442) was succeeded by a "decomposed and reduced late G Gothic" of a Burgundian type, of which S. Lorenzo in Naples ((1266-1324), a church of the cathedral type with choir aisle and five radial chapels, represents the most important monument.. In Sicily the earnest Norman architectural forms are combined with the gayer Mohammedan ornament and the Byzantine splendor of pictures into a harmonious unity of peculiar magnificence. (Fig. 173). The porch of the south side of the cathedral of Palermo (Fig. 174) is a work of this style from the m middle of the 14 th century.

Offshoots of the Gothic of lower Italy also found admission farther East in Cyprus by the mediation of the crusades, where among others the metropolitan church of S. Sophia in Nicosia, erected at the beginning of the 13 th century, exhibits a plan allied to the cathedrals at Sens and Paris, yet wanting the c circle of chapels. Even in the Holy Land may be followed the echos of this style in church architecture, even if then are also proved now in few architectural remains.

VI. Spain and Portugal.

About the middle of the 13 th century the Gothic style found entrance into the Iberian peninsula, and indeed it was the art style of northern France, which in its full maturity was chiefly introduced by the mediation of the Cistercians. Yet the

style only attained here in a limited sense to an independent development. The two young Christian kingdoms of Aragon and Castile were in the 13 th and 14 th centuries too much occupi-
140 ed with the arrangement of their political conditions, to be able to devote themselves to an energetic fostering of art, a and likewise Portugal, and when in the course of the 15 th century the people of the Iberian peninsula were favored by the epoch-making discoveries of their seamen, and rose for a brief period to a world supremacy, by which unexpected wealth flowed to them, then men were compelled to call foreign artists into the country. Chiefly Netherlanders, Germans and Italians were invited. On the works instituted by them was gradually formed an independent and natural style of art, but which was less e expressed in the form of plan of the buildings, than in their spaciousness and luxuriant and ornamental treatment of the southern character.

In Spain the churches retained the high enclosure of the pr-riests' choir in the middle aisle (page 57), placed their most sacred chapel (capilla major) instead of the northern choir, connecting this with the priests' choir by a latticed passage. The side aisles were enlarged by rows of chapels, that were frequently continued at all external walls. In regard to the form of ground plan, there appeared such a great preference for the French cathedral system with choir aisle and rich circle of chapels, that men firmly adhered long to there, even d during the victorious advancement of the Renaissance. Also in this the Spanish cathedrals pursue a course peculiar to them in that they retain the cloister and even treat it richly, while the principal northern churches of the bishops' omit it a as a rule after the 13 th century. As in the general plan so also in the axial relations and the like were the prototypes of northern France at first determinative. With the beginning
141 of the 14 th century appear more strongly the influences of t the art stylo of southern France. The architects first of all aimed to create grand interiors, and they completed these with very important structural works. But thereby also the basilican tybe first disappeared in the northeast and in the 15 th and 16 th centuries in all Spain. Church architecture turned

to the hall system, which favored the endeavor for a unified treatment of the interior. This appears in the northern provinces in its pure form, but in the middle and southern regions passed into a peculiar development. There the buildings assume a very wide plan in the form of a slightly elongated rectangle with five or seven aisles, among which the middle and that taken as the transverse aisle are but moderately wider than t the others and are but little higher. The eastern side terminates either in a rectangle or in small chapels, which are repeated along the sides. Thus these Spanish church buildings approximate in the form of ground plan to the arrangement of the mosque usual among the Moors.

The structure continues in the forms of its prototype, on w which the works are based, or with which the masters were acquainted in their native country. Therefore it is very rich in changes. But the window openings were chiefly limited to smaller dimensions in comparison to those of the northern churches. The heights of the side aisles as a rule were reduced outward (as at the cathedral of Milan, page 133). The tower structure over the crossing,already peculiar to Spanish churches in the Romanesque period (cimborio, page 58), was retained and treated with particular richness. (Fig. 177).

In architecture and decoration the Spanish art spirit first appeared more strongly; there developed that rich and flourishing late Gothic style, which the Spaniards designate as "estilo florido". Almost the entire second half of this century belongs to it. It is also much permeated by Moorish motives, b but follows the basal course of the luxuriant Flamboyant (Fig. 175). Besides it the Mudejar style (see volume 1, page 124) practised by the Moorish workmen and artists, more indeed in palaces than in church buildings, reached a splendid development, to whict Moorish technics the the Moorish ornamental style, with the adoption of Gothic lines and decorative forms, gave its individual stamp. (Fig. 17‿).

About the end of the 15 th century appeared an enrichment of the ornamental expedients of architecture peculiar to Spanish art. In the continued endeavor to heighten the artistic effect, the ornamental forms of metal work, particularly those of

the goldsmith's art, which then flourished greatly in Spain, also found entrance into architecture at a time, in which the new Renaissance motives came there from Italy. Thus originated the Plateresco, i.e., "goldsmith's style", in which the flourishing Flamboyant was fused with the fine patterns of the Mudejar and the elements of the early Italian Renaissance into an extraordinarily graceful and showy art style. Its beginnings go back to the year 1480, but it only reache full maturity in the 16 th century.

The three chief works of Spanish Gothic of the 13 th century belong to the school of northern France; these are the cathedrals of Burgos, Toledo and Leon. The cathedral of Burgos (Fig. 177) was founded in 1221, and is a three aisled cross-shaped basilica with choir aisle and rich circle of chapels. The nave has clustered piers with massive round piers in the choir and rich decorations on bases and shafts. The facade forms the show piece of Spanish Gothic architecture. The two stately western towers were erected in complete consistency by a G German master Johann from Cologne (1442-1458). (Fig. 179). Yet more imposingly planned in proportions is the cathedral of Toledo (Fig. 180), begun 1227, with a double choir aisles and a circle of chapels, that are continued to the western facade, adorned internally by richly subdivided piers and splendid show decoration, interwoven in which are Moorish motives of many kinds. The cathedral of Leon was built in the second half of the 13 th century and bears strongly expressed the traits of the Gothic of northern France, that may be recognized in the almost complete resolution of the walls into the windows. In the lines of its plan, it follows the system of the plan of t the cathedral of Rheims. At the end of the 13 th century was also commenced the cathedral of Barcelona (1298-1448), a three aisled building with chapels between the buttresses moved inward, arches of very wide spans on unusually slender piers, airy galleries over the side aisles, and a but moderately raised middle aisle. Yet wider is the middle aisle of Maria del Mar in Barcelona (1328-1383), widest of all churches on the Spanish mainland being that of the collegiate church of Manresa (n (near Barcelona) with a distance of 50 ft. between axes. But

even this dimension is still inferior to that of 64 ft. in the middle aisle of the cathedral in Palma on the island of Malorca, allied to the cathedral of Florence in spaciousness. Finally the cathedral of Gerona (in northeast Spain) in its single aisled nave extended by chapels and placed before the three aisled choir, -- it was originally planned with three aisles,-- reaches in the four cross vaults a span of 73.0 ft., the greatest span of a vault in all mediaeval architecture.

The hall type is splendidly represented by the cathedral of Saragossa. (Zaragoza). This building was erected after 1318 as a rectangular ground plan with five aisles and five bays in each, a row of chapels on both sides, transepts, which do not project beyond the line of the chapels, three abses and a cimborio, the largest hall church in the world. The chief work of the 15 th century is the cathedral of Seville, planned in colossal dimensions and built after 1403 on the site of the old chief mosque. Its ground plan has the form of a rectangle, including a five aisled nave and single transverse aisle with the same width as the middle aisle, with rows of chapels between the buttresses drawn inward along both longer sides and at the altar end. By the strong elevation of the side aisles, t the interior makes the impression of a hall church. All rooms have cross vaults with the exception of the crossing, that is covered by a domical vault instead of the cimborio, that fell in 1512. The towar in its lower portions belonged to the mosque, the famous Giralda, the emblem of Seville, and serves as the bell tower. Of the hall type native in the north is the church at Medina del Campo, and of the hall churchss, the monastery church of S. Juan de los Reyes in Toledo (after 1477), treated in the most luxuriant Plateresco, are to be mentioned, and whose splendid cloister is represented in Fig. 181.

Even in the 16 th century Gothic architectural works of importance were erected in Spain; the cattedral of Salamanca, begun in 1512, designed by Anton Egas and Alfonso Rodriguez, cathedral architects of Toledo and Seville, and that is a mean between those of Toledo and Seville, has a three aisled plan with rows of chapels on three sides, and shows a developed buttress system in the structure, and further the cathedral of S

Segovia, erected after 1522 in noble and still pure late Gothic forms, as well as the cathedral of Granada, begun in 1523 by Enrique de Egas (a brother of the previously mentioned Anton Egas), which however only shows the Gothic design in the ground plan, but the structure is entirely arranged in the forms of the Renaissance.

Portugal likewise in the 13 th and 14 th centuries did not attain an artistic independence (Fig. 59). The international Gothic imported from France and Spain at first only occasionally exhibits Moorish tendencies. First about the end of the 15 th century with the great political rise of the country appeared an independent and rich art climax, that (after 1480) runs parallel to the development of the Plateresque style in Spain, but in Portugal the Moorish mode of ornamentation becomes stronger and later (after Vasco di Gama's return from the East Indies in the year 1499)., even Indian forms are adopted. In the 16 th century with this luxuriant style (arte manuelina) after the great king Emanuel (1495-1521) * are combined the f forms of the early Italian Renaissance. These were chiefly i introduced into Portuguese art by the Italian master Andrea Sansovino, who was called to Lisbon by Emanuel's predecessor, Johann II. To this were yet added finally numerous motives of Netherlandish art by means of sea voyages. The architectural and ornamental forms so originated did not in the end prove progressive and faithful; but considered by themselves, they still form an interesting mode of expression with a peculiarly fascinating charm. (Fig. 182).

* *Under the wise government of this monarch blossomed the "golden age" for Portugal.*

As the earliest work is to be mentioned the Cistercian church of Alcobaca, already commenced in the Romanesque period and dedicated in 1222 (page 59), whose choir represents the Burgundian cathedral system, while the nave is influenced by the church architecture of western France. The developed Portuguese= Gothic art finds its centre in the grand monastery design at Batalha. Founded in the year 1385 after the splendid victory of the purtuguese over the Spaniards, which secured their independence, the monastery was intended for the Dominicans and

first acquired the church, a three aisled basilican structure with high side aisles, transepts and five parallel choirs after the style of Cistercian designs, but with polygonal apses. To this were added the square tomb chapel of the founder, erected in the line of the facade and attached to the nave, also the great cloister and the refectory, chapter hall, and the other buildings belonging to the monastery plan. About 1450 w was added a second cloister, and in 1551 a third square of buildings with a cloister. It seems doubtful that English influences contributed to laying out the plan. The artistically m most noteworthy portion of the architecture is the "capellas imparfeitas", added after the beginning of the 15 th century, at the eastern part of the church on its middle axis, a great octagonal central building, that if it were completed, would form the most important Gothic central structure, besides the Liebfrauen church at Treves. The lower story bears expressed English traits. The upper story (after 1491) was extended by Joao de Castilho, the greatest architect of Portugal's best p period. It is showy in that fancifully combined style form, from Gothic, Moorish, Indian and Renaissance elements, in which the latter gradually attained predominance. The developed Emanuel style of the 16 th century is most characteristically shown by the choir of the Knights of Christ at Thomar (Fig. 1 184) and the charming monastery church at Belem (after 1500), a magnificent hall design with net vaults above richly decorated slender piers (Fig. 185). Above the church lies the enrapturing cloister represented in Fig. 286, whose principal motives however already belong to the form series of the succeeding period.

B. Monastery Designs and allied Groups of Buildings.

However deeply the Order of Cistercians and those of the succeeding Franciscans and Dominicans were concerned in the evolution and spread of the Gothic, and also however great was the architectural activity developed by them in the erection of c churches and monasteries, they introduced no substantially new ideas in the design of the monasteries themselves; afterwards as before, the scheme of the monastery of S. Gall remained de-

determinative (see volume 1, page 182), even if also occasionally varied or new buildings were based upon it in a richer or simpler manner. Larger plans sometimes provided two refectories, one for summer, the other for winter. The fountain house (Figs. 186, 187) was frequently treated as a small central building, with glass paintings in the windows similar to those of the cloister. Instead of the common dormitory usually appeared the living cells built for the individual members.

To frequently very extensive groups of structures grew in t time the settlements of the great Orders of the Cistercians a and Benedictines, provided with estates. In the erection of monastery churches even for the Cistercians, their characteristic form of plan not seldom was changed to the usual arrangement. Magnificent examples of great Cistercian foundations c completed in the Gothic period are found at Maulbronn and Bebenhausen in Swabia. The abbey at Maulbronn (pages 311 38) is of unique archaeological worth on account of its rich design and complete preservation. The most important portions of the buildings still belong to the Romanesque period. Through the porch a (paradise; see page 149) of the ground plan in Fig. 986 one enters the three aisled church (dedicated 1178). It terminates in a rectangular choir without apse and with a row of chapels, was originally covered by a horizontal ceiling, b but was furnished with net vaults in 1424. By the system of buttresses then introduced, the nave was extended by chapels on the south side. After these building eras followed in 1201 the council hall i, the lay refectory g and the porch (paradise) a (about 1215). About 1225 was built the monks' refectory h and also the south wing of the cloister extending beside the church. (Fig. 40). Between the two refectories lay the kitchen. Past the chapter house m, erected beside the transept of the church, led the convessation hall (parlatorium), covered by rich net vaults to the abbot's house o, that was erected in strong wooden construction (1512-1518). The wing of the building denoted by k is a two aisled cellar; f is the picturesque fountain house reproduced in Fig. 187. Outside this inner clausure lie the farm buildings. The entire monastery is entirely enclosed by strong outer walls. In northern Germany the

abbeys at Lehnin and Chorin also received structures in noble brick Gothic. The Austrian monasteries at Heiligenkreuz, Zwetl and Lilienfeld were enlarged in the Gothic period, and the Bohemian Cistercian abbeys at Goldenkron and Hohenfurt were in great part built. In France among others the abbeys at Fontenay, Fontfroide and Ourscamp belong to the noblest creations of early Gothic, likewise the splendidly located and well fortified Benedictine settlement of Mont-Saint-Michel in Normandy.

The Franciscans and Dominicans in general remained faithful to the simplicity taught by them (in Regensburg, Constance, Esslingen, Basle, Strasburg, Erfurt and Cologne). Their churches for a long time had horizontal ceilings. Somewhat more expressive are the Carthusian designs, whose cloisters already assumed great dimensions with reference to the cell system introduced by them (Carthusian monastery in Nuremberg, now German Museum). When the monasteries were founded or particularly favored by neighboring princes, there also originated richer designs with splendid decorations, as for example at the already mentioned Certosa near Pavia (page 132) and the Dominican monastery at Batalha. (Page 147).

Separate cloisters were further common near the great principal churches of bishops in Spain (page 140) and also in England till the 15 th century, among others in Salisbury, Durham and Gloucester; a view of the richness of the latter is given in Fig. 188. In France, Italy and Germany they were only exceptionally built from the high Gothic period onward. The still existing cathedral cloisters in Laon, Magdeburg, Erfurt and Regensburg are noteworthy monuments in the history of art.

An intermediate position between monastery and palace architecture is taken by the castles of the German Orders of knights. Their finest example is the Marienberg near Danzig. It was begun in the year 1280 and in the 14 th century was rebuilt and materially enlarged, after the seat of the grand master had been transferred there (1309). The different structures are grouped around the rectangular two story cloister, on whose northern side lies the church of S. Maria as the chapter h hall. The east wing is occupied by the dormitories, the west wing by the dwellings of the higher knights, and on the south

side are found the living hall and the great refectory. Between 1357 and 1382 was erected the castle of the grand master, after the outer castle had been removed further. In it the mechanics of the Order, who had proved themselves particularly competent masters in the construction of fan and star vaults, and introduced among the forms of northern German brick and Rhenish Gothic many motives from the Norman art in Sicily known to them, produced an artistically prominent work, not only in the internal architecture (Fig. 189), but also in the external subdivision and animation of the wall surfaces. In like manner the castle of Carlstein in Bohemia, erected in 1348-1365 by Matthias of Arras under Charles IV, is a combination of castle and monastery architecture. It must serve as a permanent seat of a collegiate chapter, as a treasury for the jewels of the empire, and at least in part as a residence for t the princes of the country. In France originated in the 14 th century the stately castle of the Popes at Avignon, intended for similar purposes. More modest were the bishops' palaces, of which considerable remains exist in France and England,(Laon, Sens, Narbonne, Wells) and in the southern countries, which are still partly complete monuments.

Likewise the hospitals are always connected with buildings for divine service. For sanitary reasons they were mostly built near flowing streams on the outskirts of cities, and for their ground plans were selected either the cloister plan, as for example at the hospital at Cues on the Moselle, founded in 1450, or a direct combination of chapel and hall for the sick, like the Heiligengeist hospital at Lübeck, founded in 1276, a and the hospital at Frankfort-a-M. The great model structure at Milan (Ospedale Maggiore) already stands on the transition stage to the Italian Renaissance.

C. Gothic Secular Architecture.

In a period when the greatest deeds were seen in the erection of cathedrals aspiring towards heaven, secular architecture could not rise to the high stage of perfection, to which church architecture had soared. Yet also secular architecture, under the increasing participation of the princes, the higher and m middle nobility, of the citizens acquiring great wealth, as w

well as the cities and within them the secular assemblies and associations, was favored by the fact, that the practice of t the art had passed into the hands of laymen, to record very noteworthy works, in part grand and equal to church architecture.

The most important problems fell to secular architecture in the erection of castles, forts and palaces as the residences of reigning princes and of the nobility. As a rule they reflect the purpose, being first of all directed to strength and capacity for defense in a period affected by wars, and they c chiefly assume the character of a fortress, even if they lie within well fortified cities. The plan is at first quite irregular, but later it generally approximates the rectangular f form with strong defensive towers at the angles. About from the middle of the 14 th century onward the princely residences and castles gradually lose their previously innate character of buildings exclusively for defense and safety. In increasing measure is attention devoted to the requirements for residence. From the treatment of the proud halls and rooms, the Gothic minor arts derive great advantage. The walls were mostly furnished with paneling, that sometimes extended the entire h height, and in their treatment with bands and blind tracery w were repeated the architectural forms transferred to the minor arts. (Fig. 191). On the ceilings the framework was left entirely visible, or it was furnished with paneling, especially in the smaller rooms. In the larger apartments the ceilings were either treated as vaults, executed in stone with a rich arrangement of ribs, with wooden ceilings having cross strips or on beams, which were very showily treated, particularly in England.

Within essentially more modest limits were restricted the d dwellings of the patricians and well to do citizens. In consequence of continued rebuilding, to which the houses were mostly subjected, and the frequently careless laying out of the streets of modern cities, but a relatively small portion of t these monuments have remained to us, from which it results that also the well situated merchants and citizens adopted for themselves certain basal traits of the dwellings of the nobles,

and also did not like to reject a certain richness, both in t their external appearance as well as in their internal equipment.

In great number appear the city halls as splendid and very impressive evidences of the flourishing and increasing strength of the citizen class in the middle ages. On them is correctly shown to what a height secular architecture had already risen at the beginning of the 15 th century. The equipment on the exterior frequently presents choice jewels of Gothic art. (Fig. 191). As a rule they contain in the ground story open halls for assembly and mercantile purposes, in the upper story being the great citizens' or council hall with the offices of the government. Carried to a stately and frequently imposing height, the tower was utilized for the service of the watchmen and was regarded with particular pride by the citizens; it frequently formed the characteristic of their city. Just as interesting are the city porticos, the mints, buildings for weighing and measuring, the great merchants' shops, granaries, exchanges, guild and society houses (Fig. 192), both as monuments in the history of civilization, as a measure of what the different cities,and within them the associations of citizens,required as suitable representations of themselves and of their dignity. Another productive field was found by civic architecture in the fortification of the cities. These could be defended the more easily, the smaller their extent, or the shorter the enclosing walls; therefore the great height of the houses, the narrow alleys and no open squares. The stately gates on which the design and construction intended for defense and also artistic ornament were employed, in combination with the bridges on wide arches and protected by towers chiefly produce the charming and picturesque architectural views of the mediaeval cities. Finally reference should also be made here to the buildings for colleges, which with the advancement in the sci-
150 ences attained to particular importance. The universities were chiefly derived from the ecclesiastical colleges. The group of buildings erected for them as a rule followed the monastery plan, which favored a suitable grouping of lecture and p practice halls around the great court.

As in church architecture, so appear also in secular architecture, in respect to the number, kind, plan and construction of architectural works, many peculiarities , and they characterize the different architectural domains.

In France the most important secular buildings are the castles, mostly destroyed. Representative here was the old Louvre, which must later yield to the new building by Francis I. Judging from ancient miniatures, it was a structure enclosed by strong external walls well defended by towers, symmetrically arranged on an octagonal plan with round angle towers and two round towers projecting from the facade at both sides of the middle elevated window. The few still partially remaining monuments, such as the royal castle at Tarascon, the castles at Poitiers and pierrefonds, and the wing of the castle at Blois named after Louis XII and richly equipped in the interior (Fig. 193), exhibit a far more refined treatment than the contemporary works in Germany. The French castles of the nobles mostly preferred a massive donjon (keep) with strong angle towers(page 67), that was ever more broadly and freely developed, until it was transformed into a court enclosed by internal arcades and surrounded by four wings, which was entered through a vaulted gateway; above this generally was the chapel. Of the city halls is to be mentioned that at Compeigne with high tower (b (belfry) and graceful angle turrets, to whose type adheres the late Gothic palace of justice in Rouen.(Fig. 194). Likewise the palace of justice at Paris merits consideration, as well as the house of the Abbot of Cluny there, distinguished by an elegant facade. Of the often richly treated private houses, the house of Jacques Coeur in Bourges is a charming example.

In England the castles and the old English noblemen's seats present an interesting and unified representation of the style, among them being prominent those of Westminster, Hampton Court, (Fig. 195), Eltham and Warwick. They preferred the court plan with frequently a very extended development of the facade; and the principal attention was always devoted to the great hall, often extending to the roof and particularly imposing in internal and ornamental respects, over which the richly carved wooden ceiling, generally treated with hammer-beam trusses of bold span, belongs to the splendid pieces of Gothic decoration. (F

(Fig. 141). We have already referred to the world famous colleges (page 115). The entire secular architecture of England bears an entirely native and distinguished stamp by the preference for straight lines and a decided accenting of the verticalism, the windows terminating in lancet, depressed,and later in Tudor arches with mullions like stone tracery, the crowning battlements, charming bay windows, and the splendid forms of gateways, by the broad and spacious halls in the interiors with banded architecture in the wall panelings, the much subdivided vaults or the rich wooden ceilings.

In Germany the Albrechtsburg in Meissen, enthroned in a noble location above the Elbe and protected by massive towers, erected in 1471-1485 by master Arnold of Westphalia,is indeed t the best example of the late mediaeval German princes' seats, already tending to a more regular and spacious design. The k keep is accessible by a very picturesque stairway tower and is furnished with abundant light by windows ending in shouldered arches. Its rooms were covered by high cellular vaults of stalactite form. (Page 87).

In Hungary the Alt-Sohler castle, built on a hill as a defiant fortress about 1350 is yet in good condition, and also in Switzerland castle Stuffis (canton Freiburg), likewise built in the 14 th century, which approximates the designs of the k keeps of the French models.

Middle Germany has important works of castle architecture to show in the fortress of Coburg, rebuilt after the fire of 1500, whose princely structure is adorned by magnificent decorations in wood, and in the castle at Marburg, that still contains its stately knights' hall, and the castle Stolzenfels in the Rhine province, dating even from the 13 th century, and restored in the 19 th century. Besides numerous castles remain from the Gothic period in Germany and Austria, even if in great part only in ruins, in largest numbers in the Rhine provinces, the Tyrol and in Bohemia.

To the noblest creations of German secular architecture also belong the city halls. A very impressive monument of this kind stands in a corner of the market place at Brunswick with t two wings at right angles to each other, which open toward the marketplace with pointed arcades in the lower story, and in t

the upper with rich tracery windows crowned by tracery gables. Of the old city hall at Nuremburg the great hall still exists. In Frankfort-a-M. the Römer was erected after 1405 with a great imperial hall, whose ceiling dates from the year 1612. The city halls at Breslau, Prague, Ulm, Basle and Cologne are works of the late Gothic period. In contrast to these cut stone buildings, the northern brick Gothic is represented by the city halls in Lübeck, Brandenburg, Tangermünde, Königsburg-I. N. (Fig. 196), Bremen, Hanover and Stralsund. The latter mostly have architectural portions from the most different building periods. Their external architecture lays chief stress on the development of richly subdivided gables adorned by slender turrets. Even with simpler means and in half timber construction, the city halls in the smaller cities were frequently treated in a very pleasing manner. (Alsfeld, Duderstadt).

Notable examples of buildings erected for commercial purposes are given by the Artushof at Danzig (built 1477-1481), erected as an exchange, and the Gürzenich in Cologne (after 1441). The Welsche Hof in Kuttenberg (Bohemia) was begun in the 14 th century and is one of the mediaeval mints. Erfurt possesses an interesting monument in its old university, dating from the beginning of the 16 th century. In the southwest provinces of Austria on the great structures intended for commerce and traffic, by the numerous trade relations with Venice, powerful influences of Venetian art frequently appeared, for example on the corn-measuring house at Bruck on the Mur. Likewise the c citizen's house in cut stone, of the Gothic period frequently exhibits a richer treatment in massive stone construction, like the Nassauer house at Nuremberg and the Krafft house there (Fig. 197) of about 1510, the "stone house" at Frankfort.A.M. (after 1464), the etzweiler house in Cologne, also belonging to the 15 th century, and numerous dwellings in Münster-i-W. Brick buildings of this kind are still found in great numbers in the Baltic provinces, in Saxony, Hanover and Brunswick. In southern germany as well as in the Tyrol and Bohemia, the bay windows (termed "little choir" in Nuremberg), form a favorite and extremely impressive ornament of the facade. (Fig. 198). But in general for all Germany and all middle Europe continues

the half timber construction with stories corbelled out, carved timbers and purlins, and ornamented window enclosures compose the chiefly apparent forms of the citizen's house. (Fig. 199). In its lower story as a rule were located the rooms for business (shops, warehouses, workshops etc.), in the upper stories being the dwelling. The stairways permitting access to the stories enjoyed a soon increasing consideration. Particularly favored were winding stairs, that were often treated in a structurally spirited and artistic manner.

That likewise the buildings for public purposes erected by mediaeval architects attained high technical safety and great utility, and frequently received a monumental treatment, is shown on the Elbe bridge at Raudnitz in Bohemia, built after 1333 by a master William of Avignon, called from France, and on the grand Carls bridge in Prague erected by Peter Parler. (Page 126). Here stands likewise the Altstadt bridge tower and in its vicinity the similarly treated powder tower, begun in 1475; they are splendid representatives of these imposing gateway towers, which remain in extremely great numbers in a all Germany, particularly in its brick regions.

In the Netherlands, particularly in their southern portion, secular architecture reached a development, that stands equal to that of church architecture. In no other country has the prosperity and strength of the citizen class found so high a monumental expression as there. In the first rank stand the city halls. As their greatest example appears the city hall at Brussels, founded in the year 1402, a square structure with sides of 196.9 ft. and a tower 334.6 ft. high, which has the name of belfry in the Netherlands. This building was the model for the city hall at Audenarde, erected in 1525-1529. In Louvain Matthias of Layens built the city hall between 1447-1463 in moderate dimensions and without a main tower, but with a richness of architecture and sculpture previously unknown. In Bruges originated in 1376-1387 the city hall, also in modest dimensions. (Fig. 200). The mighty hall tower there even belongs to the 13 th century (1283), and rises above the lower structure crowned by battlements to a height of 352.7 ft. Grand is also the city hall at Ghent, whose north building dates from the Gothic period, was begun by Dominicus von Waghemakere

and completed with the most luxuriant Gothic decoration.

But the wealthy commercial cities in Flanders also frequently erected as the most important staple warehouses for the goods brought by the seafaring people from foreign parts of the world vast and often splendidly equipped structures for commercial purposes. The cloth hall at Ypres (now city hall) woth a length of facade of 436.7 ft. and a belfry 229.7 ft. high. The cloth halls at Louvain and at Mechlin belong to the 14 th, and that at Ghent to the first half of the 15 th century. With these public buildings compete numerous guild and society halls and even citizen's dwellings as elequent witnesses of t the unbounded wealth of a splendor-loving citizen class exerting itself in great artistic works.

In Italy the development of the Gothic secular architecture does not exhibit that unified appearance, that is generally p presented in other countries. The castles erected by the Hohenstaufens in Apulia and Sicily, as for example the castle del Monte and the castle at Buri and that at Gioia are characterized chiefly by their lofty external walls and massive angle t towers rising from polygonal outlines as defiant fortresses. The castle Nuovo in Naples, built for the kings of the French house of Anjou, tend more to French models. A tendency toward the picturesque by their grouping and external treatment is s shown by the castles in upper Italy at Pavia, Milan and Ferrara. (Fig. 201). The pincipal domain of Gothic secular architecture beyond the Alps lies in middle and upper Italy, and there chiefly in the independent cities woth great power, where the city houses and private palaces compete with each other in beauty. The nobility already from the 11 th century had located its chief residences in the cities, and the ruling families saw clearly then, that if by their active powers they succeeded to the government, it was essential to glorify their strength and to quiet the mass of the people by the erection of imposing palaces and public buildings.

The palaces of the nobles in the cities no longer as in the antique house have the dwelling on the ground floor, but in t the first story. The walls of the lower story mostly remain closed or receive only a few small windows, arranged for defe-

defense. thereby the entrances, portals and stairs acquired increasing importance. Battlements for defense crown the facade walls above the slightly projecting arched cornices. Generally corbelling of stories is transferred from wooden construction to stone, so that the walls of the upper stories rest on arches or stone corbels. In Florence the Gothic palaces always produce the impression of fortified stone houses. They have a regular and rectangular ground plan about a small court, surrounded on one or more sides by porticos; the arches that support the heavy walls of the upper stories rise on single a and mostly octagonal piers with modest foliage capitals. The externally dry Bargello or palace del Podesta was begun in 1225, and has an extremely picturesque court. On the massive palace Vecchio, rich in historical recollections, erected in 1299-1301 by the cathedral architect Arnolfo, the seat of the signory, i.e. the city government, the fanciful form of the tower is s striking. Of the remaining Gothic palaces the palace Quaratesi is still entirely preserved. A noble hall structure was e erected in the year 1339 as a grain exchange, but was later t transformed into the church Or S. Michele. The loggia del Bigallo (1352-1358; Fig. 202) erected on the cathedral square as a graceful portico for charitable purposesland the pround loggia dei Lanzi built by A. Orcagna (1376-1382) beside the palace Vecchio, in which the signory performed their solemn official transactions, show correctly how strongly the antique tendencies in archiтectuer reacted in the Tuscan Gothic. Likewise on the palace del Commune at Perugia (1340), distinguished by its magnificent portal, is this plainly visible. (Fig. 203). In Piacenza is to be emphasized the stately palace Communale (begun 1281), opening in its lower story by a massive portico with piers. In Bologna the loggia de' Mercanti, built for commercial traffic in 1382-1384, is counted among the noblest creations of brick Gothic. Extremely rich in secular Gothic buildings is old Siena, where the stately palace Pubblico (1289-1305) with its boldly ascending tower (Fig. 204) and the richly treated palace Buonsignori deserve particular consideration.

A quite independent position is occupied by the old commercial city of Venice. The Venetian palaces do not have that stern appearance of fortified family castles, as in Florence. In

them is expressed the love of splendor of a rich people inclined to a gay enjoyment of life, versed in the world, and which was called forth by an acquaintance with oriental products. The palaces are always symmetrically arranged on a rectangular ground area, have the housekeeping rooms in the lower story, in the upper being a hall occupying the entire depth of the house, which in a certain way affords a substitute for the court, lacking on account of the soil conditions of the city of the lagoons. Their facades are preferably turned toward the grand canal. The continuous series of grouped windowı, that light the great hall, and in whose treatment is particularly to be seen rich tracery, produce in combination woth the balconies and loggias an extremely prominent ornamentation. (Ca d'Oro, Palaces Pisani (Fig. 205), Giustaani, Foscari). The most magnificent architectural monument of the Venetian Gothic is the Doge's palace, combining at the same time the residence of the prince and the government house. (Fig. 206). The mighty building, commenced after 1310 and first completed in the 15 th and 16 th centuries, encloses a court treated in the 16 th century in the most elegant manner, and it has toward the place S. Marco and the canal two imposing and showy facades. The t two lower stories open in airy and graceful arcades, on which rest the external walls of the upper story, rising high, entirely undivided and only opened by some colossal pointed windows, and faced with marble tiles in geometrical patterns - a r remarkable reversal of the general architectural principles, since the opening of the walls should occur in the upper stories on account of the heavy load -- but the whole produces an architectural form of wonderful anf most highly majestic appearance.

In Spain in the royal palace at Olite (Navarre) are retained the basal brinciples determinative in French castle architecture. As a particularly rich work appears the palace of the d duke of Infantado at Guadalajara (1462) with splendid facade adorned by bay windows and luxuriously treated court, in which Moorish elements are interwoven with Gothic forms. Oriental tendencies make themselves apparent in Spanish castle architecture likewise in the mode od fortification, the subdivision of

the external walls and the architectural treatment, as especially evident on the castle de Coca near Segovia (15 th century; Fig. 207). On the Casa de la Deputacion in Barcelona, begun 143[illegible], that encloses an elegant court, influences from southern France are undeniable. In Valencia (after 1498) Pedro Compte, the architect of the cathedral there, erected the three aisled hall structure of Casa Lonja (exchange) there, which with its magnificent treatement of the portal and the fanciful windows, twisted columns and rich net vaults belongs to the most important works of late Gothic secular architecture.

III. Architecture of the Renaissance.

General Basis.

With the end of the 13 th century the Gothic style had reach- the limit of its development in France, the land of its origin. Thenceforth several tendencies made themselves felt within it, which opposed its nature, loosened its consistent orderliness and effected a complete dislocation of the principles, from which it originated. The Gothic had penetrated extremely deep and to the innermost marrow of the people. But the absolute rule of tradition required by it could only be maintained as long as this was entirely filled with the mediaeval spirit; it must fail at the epoch, in which different conceptions of the world and its phenomena appeared and men strove for new ideals. We could observe in the entire course of late Gothic, how with the influence of the common and practical sense of the citizens in church architecture and in a still higher degree in secular architecture, the respect for the strict principles of the style gradually disappeared from the minds of the people. And when finally new and real requirements entered the foreground, then the Gothic style, once carried to such a rich climax, showed itself unfruitful, entirely exhausted a and capable of no further development. Thus appears to us in the entire 15 th century, even where Gothic remained in its s supremacy in France, Spain and Germany, in spite of numerous flowers still rising from the withering branches, there is yet merely a continued life in its deeply rooted trunk, a final w wasting of the remains of the strength within it, a slow dying of mediaeval art.

At the same time proceeded from Italy the light of a new life. For after a long period of decadence, in the second half of the 13 th century, there came a time of floresence for the sunny land south of the Alps, in the course of which the sciences in combination with the formative arts attained to a splendid development. On its soil, always swept by a slight wind of pagan antiquity, the Gothic middle ages had but partially prevailed in certain definite regions, and even threre frequently only by giving up its most important principles. There also broke out fully then that mighty movement, which overthrew

the entire mediaeval system and introduced a new and completely changed period.

If one seeks the impelling forces of this movement, we first find the feeling for nature again aroused in all the nations of the West and even becoming stronger after the middle of the 13 th century, which stood in abrupt contrast to the gloomy a and world-renouncing spirit of the middle ages. After Petrarch (1304-1374) had described the beauty of the world with such glowing inspiration, the joy in nature became general. A previously unknown impulse toward a knowledge of its phenomena a and their causes, a formal thirst for knowledge possessed all minds. Opposed to it the old scholasticism sank into a nonentity.

Extremely forcible in the evolution of the conditions of the time was further the effect of the unusual importance, that i individualism secured in the people generally, indeed both in intellectual and political, as well as in artistic domains. Great and powerful personalities, coryphees, such as no second period of the history of civilization and of the minds of mankind has to show in such serried ranks, appeared on the scene. By them were broken the restraining fetters of the rigid mediaeval compulsory dogmas. Free activity in intellectual and p political life was the first and most important requirement, with which the largest classes of the people agreed. A democratic and entirely realistic basal tendency dominated the multitude. It was unavoidable, that the Christian idea thereby lost its importance, and the influence of the church diminished. In increasing measure the chief attention of public life was devoted to secular interests.

There the thoughts of classic antiquity, chiefly produced by learned study, found willing acceptance and brought a new impulse, highly characteristic of the change in views, very important for the further development of the conditions of the time. Men saw in the peoples of antiquity, whose works expressed such a serene and secular character, frequently the ideal of the most perfect earthly felicity; their literature, mythology and art continually enjoyed a warmer reception. Comparisons were drawn between the architecture of the ancients and that of the

middle ages, and men finally reached the conclusion, after recognizing the high formal superiority of the former, that this was ever the unattained and the undying ideal of artistic expression; therefore the revival of the antique, which contained the most dignified and most elevated forms of all, was what a art must everywhere strive for, forming the highest aim for a all artists of the later time. -- In the second half of the 14 th century Petrarch and Boccacio, the greatest poets of Italy's best period, demanded as first and most important the a adhesion to the antique. This idea acted on the artists like a greater illumination. In the first half of the 15 th century it became a fact. Thus after centuries of strife between the traditions of the fallen Roman empire and the Gothic elements coming from the North and not capable of assimilation in Italy, men came to the conclusion, exceedingly important to t the history of civilization, to adopt the Roman architectural forms as a means of expression for the new requirements in the intellectual and material domain, changed from those formerly common. It was an occurrence unequaled in the history of the world, that an art was awakened into new life after being dropped for a thousand years.

The new epoch in art and science thereby introduced, already in the 16 th century had received the name of Renaissance (from the Italian rinascimento = rebirth), although this appellation in nowise exhausts the signification. For the antique is not the deciding but the concurring factor. It was also actually in the new movement not treated as a "rebirth" in the sense here conceived, but as the transition to a new view of the world. It was an entirely new spirit derived from naturalism and individualism, renouncing the middle ages, and which saw in the versatile balanced beauty and maturity of classical antiquity the ideal of a harmonious and humane con eption of life, regarded its language and literature as an inexhaustible source for the ethical and intellectual education of the human race, and founded that humanism, on which rests all modern civilization.

Certainly the artists conceived a revival of the antique, e entirely aside from the realm of architecture. With greater

spirit were studied the remains of buildings from the classical period, then preserved in abundant measure. However in them were found but few models corresponding to the architectural problems of the new period. The art of interiors had meanwhile been gone over by the elevated school of the middle ages, by whose architectural system and technical methods men had l learned to master the most difficult problems. The antique o offered to the Renaissance suitable precedents, less for the treatment of interiors, than for the forms of facades. Yet in regard to these, they were limited to the Roman theatre, the architecture of triumphal arches, and the Septizonium of Severus (see volume 1), still remaining at that time. Men could not employ the system on which these were based, but only the method of treating the forms of the details. Even in the creation of the interiors the Renaissance pursued its own course, likewise one not previously one indicated by the middle ages. The Gothic had developed its structural system exclusively in church architecture; in the treatment of interiors for convenient inhabitation or for secular festal receptions, it participated only in very slight measure. There the Renaissance appeared in order to propose a splendid programme for the "art of the mode of life." It created an internal style, whose conditions for the beauty of an interior and of its members became an ideal principle of construction of permanent value. Its creations of interiors produced by the new spirit of the time clothed the Renaissance in the detail forms of the antique; t therein lies the importance and the share of classical architecture in its evolution.

It was unavoidable under these circumstances, that the architectural treatment should rise to a harmonious and perfect o organism, particularly in the hands of few important masters, while the different members do not express the functions served by them, in the manner which we have learned to recognize in a study of the Grecian columns and their orders (volume 1, pages 62-75). Only in the stadium, in which the Roman artists chiefly learned to recognize the antique (on the monuments of the Alexandrine period and that of Roman art), the architectural members had already lost that purity, that was peculiar to

them in the best Gothic period; they had become ductile and f flexible and thus far more suitable for adoption in Renaissance architecture, than in the severe forms of the Grecian conception.

But the masters of the Renaissance did not fall into direct imitation of classical architectural forms, at least not in the early and best periods; they adopted the elements, transformed by their own feeling for style, and then applied them to their works in a new conception. With the expressed joy in nature and the strong and frequently direct accenting of the individual, they appeared as if directly opposed to the antique, even in the aim directed toward pure beauty of form. And therefore the art of the Renaissance no longer flourished as in antiquity in a unified tendency of the style; there arose different art currents, which were often carried on in their magnitude for a century by prominent leading masters. Thereby the history of art became a history of artists; the personal worship of fame in antiquity reappeared in the foreground.

For the free evolution of the great individuality of artists at the end of the middle ages, Italy and Germany offered the widest space; therefore in those countries the Renaissance bore the richest fruits; France, England and Spain afforded by their strong centralization a less favorable soil for the evolution of personal peculiarities than Germany, where the political subdivision set less restricted bounds to the occurrence and continuance of artistic individuality. But the main land of the Renaissance is Italy. It there appears as a direct expression of the spirit of the people in the forms of the antique, which was never entirely suppressed on Italian soil and even conquered the Gothic, when it compelled this to subordinate its basal principles; it rose there to that artistic elevation, which lent to it a universal importance for the entire architectural art of succeeding times.

1. Architecture of the Renaissance in Italy.

1. Historical Evolution.

Italian Renaissance architecture appeared with a great artistic work of the first rank, with the design and erection of t the dome of the cathedral of Florence. It was no accident th-

that Florence, the beautiful Tuscan capital on the Arno should become the birthplace of the Renaissance. There at the beginning of the 15 th century the interest in art had penetrated into all classes of the population, favored by a refined course of life, that elevated political and social conditions. The works of the artists attracted popular attention; in the full entirety, these took part in the high ascent of the intellectual culture of that time. In the animated sense of the Florentines, particularly receptive for novelties, was aroused a sense of their own power, an elevated feeling, that pressed forward to great artistic deeds. The opportunity for this was p presented to them by the cathedral. (See page 136). Already during the entire 14 th century the citizen class had busied itself in its progress in an unknown measure; ever again were new and grander architectural ideas brought forward, competitions among artists were established, and commissions of architects and painters with many members were formed with the command to undertake something unknown. In the year 1420 the building had so far progressed, that the erection of the dome c could begin, which Arnolfo had included in his design, even if in much more modest dimensions. But the vaulting of an interior of such a colossal span (137.8 ft.) appeared to the masters of the cathedral as a hazard, for which none among them could decide. Then Filippo Brunelleschi, a gifted, learned and many-sided man, an artist previously chiefly active as an engineer, goldsmith and sculptor, presented a design with statical explanations, on the basis of which he was appointed master of the building of the Cathedral, and was entrusted with the execution of the dome according to his plans. After 1417 Brunelleschi had undertaken thorough preparatory studies of antique structures; in 1420 he commenced the vaulting on the already existing drum, indeed as a cloister vault with strong ribs rising from the angles of the polygon, with thin vault shells built between these as the internal dome, and an external higher protecting dome built in the same manner, that was connected with the internal dome by intermediate arches. In the year 1434 was the dome completed in its most essential parts by the addition of the heavy crowning ring to receive the ribs of

the vault. At the same time was adopted the master's model f for the lantern, a small addition loading the upper ring and admitting a high side light. Its erection first commenced in 1445, shortly before the master's death; it was completed in 1467. (Fig. 208).

The cathedral dome of Florence has less importance as a style-forming monument, than as the earliest work of that master, of high importance chiefly in structural respects, which as t the first after a zealous study of the ruins of Rome was called into life with the aim for the architectural forms of antiquity. Brunelleschi was there entirely restricted to the Gothic substructure; its dome stands organically on that. And yet the same breathes the spirit of the new time. Therefore it also became the actual creative building of the Renaissance.

The succeeding evolution of the Italian Renaissance architecture was completed in three periods, which exhibit the growth, flourishing, and the decadence of the style.

1. The early Renaissance from 1420 to 1500. * This is the period of transition and of search for the new forms of the s style. Its chief region is Florence, where beside and after Brunelleschi, masters of genius, such as Michelozzo, Alberti, Rosselino, Cronaca and others developed an extremely fruitful activity. We shall learn to know their works later. They present to us particularly in the first period tentative and still uncertain proportions of the architectural masses after a antique principles, and in the treatment of details a very reserved tendency toward the architecture of the ancients without any deeper insight into the conditions on which it was based, and especially without an understanding of the more refined relations of the members to each other. On the other hand there is in the rich and naturalistic decoration a freshness and charm, which give to the works of the early Renaissance a peculiar and almost youthful grace.

** The Italians designate this period as "Quattrocento", i.e. the time from 1400 to 1500, and the high and late Renaissance, as "Cinquecento", i.e., the time from 1500 to 1600.*

2. The high Renaissance from 1500 to 1540. The art of the 15 th century advanced with colossal strides; with the beginning of the 16 th it entered a new phase. It had then learned

how to solve the most difficult problems, to perfect technical methods to the extreme, to make the classical treatment of forms its own, and to dray all arts in the richest measure into the service of architecture. The impulsive pressure of life peculiar to the entire period was contemporary with a mighty tendency toward greatness. In the entire architecture was expressed a feeling of the masters and architects directed to the monumental.

With the entrance of the high Renaissance the centre of gravity of artistic evolution was transferred to Rome. After the middle of the 15 th century the eternal city had continually won greater importance, and had drawn leading artists to itself. After the powerful and art-inspired Pope Julius II had ascended the chair of S. Peter (1503), he called the greatest masters of the new art to his court, and then arose on the ruins of the ancient world a magnificent city, in which was visibly renewed the former splendor of the Roman emperors. Italy entered on an unequaled climax, into its golden age. Artists with incomparable gifts and creative power developed before t the astonished world their epoch-making activities. This was the age of Bramante, Raphael, and Michelangelo. Both in palace as well as in church architecture did they complete the grandest works.- - Not long, scarcely a half century did this c-climax of the Renaissance last. Already before the end of the first half of the 16 th century, it passed over into:--

3. Late Renaissance. This falls in the time from 1540 to 1580. The freedom in which the great artist natures could move, which in a directly unlimited manner dominated the interior and the material and brought them into a harmonious organism, was a danger for their less important successors in a period, that required from the architects the extraordinary and the unusual; they inclined toward that intended heightening of the artistic means of expression, in which ue recognize the first symptoms of the Barocco style. But there still prevailed, at least in general and for the next period, the high sense of beauty derived from the works of the great Bramante; it entitles that group of masters with refined feeling to permanent fame, who recognized the sources of beauty in the internal

truth of the architectural works and of their organism, and in regard to the treatment of the forms in definite proportions, since they sought to investigate these and thus create principles of style, that in fact and in writing should be esteemed as ever applicable standards of genuine artistic treatment. These are the great theorists, Vignola, Serlio and Palladio, who then developed their rich abilities, sometimes in Rome and in the more important cities of middle and upper Italy. Likewise for these was determined in a still higher degree than previously the spaciousness required by the owners. They are also spirited and original in their works, even if the free a artistic feeling then prevails less than the calculating and combining understanding. The antique stands nearer them than their predecessors. With great earnestness the architectural works of the ancients were by them investigated anew, measured by stories and by orders, and from the results were established in a certain way for proportional dimensions of all separate members. Thereby architecture assumed a predominating academic character. Vitruvius' works (see volume 1, page 134) again received a thorough study. More than previously was the attention devoted to the architectural treatment. The ornamental decorative work, which played a part in the early style n nearly equal to the structural, but which in the high Renaissance appeared in a harmonious but subordinate relation, indeed retained its purity, but showed a cool and almost indifferent reserve. * Thus the buildings received an indeed dignified, b but frequently stiff and aristocratic appearance, that is particularly expressed in palace architecture and there presents a reflection of that grandeur (grandezza), that proceeded from Spain, and dominated in increasing measure the society there. About the end of the century the detail sinks to an entirely capriciously treated portion of the whole; the transition to the Barocco style is completed. * *

* *In the decadence of the enjoyment in ornamental decorative work is expressed a lessening of the national in the architecture of the Renaissance. The humanistic movement originating with it brought a division of human society into cultured and uncultured. The architecture also therefore acquired in its*

further course a predominating courtly character.

*** Indeed strictly taken, the Renaissance does not thereby come to its end. The Barocco style and its successor the Rococo properly form the last phase of its development. Yet their origin and development, particularly in northern countries, results from so many new impulses and views, that we shall consider these in a special Chapter.*

II. The Structural System and Technical Methods.

With the revival of classical antiquity the antique structural system again came into use, that in contrast to that of t the resolution of the masses and of upward movement followed by the Gothic, sought esthetic satisfaction in the rhythm of the predominating horizontal architectural masses and the equilibrium and uniformity of their bearing and supported members. Thereby the basal principles expressed in the columnar orders and their entablatures became predominant in construction. Thus the Renaissance invented no new structural system; but it performed an act of the greatest importance, when it did not restrict itself to the technics of the ancients, but in order to construct rationally in all respects, employed all systems of construction according to need. It thereby introduced a permanent basal idea into the art of the interior, since it held itself entirely free from structural restraints, so far as esthetic harmony permitted this.

With the same freedom it proceeded in the selection of its building materials and their technical treatment and employment. For the walls, ceilings, roofs and decorations, it employed the same materials as the preceding art periods. Only iron passed into use in greater abundance, yet not as an independent structural material in the present sense, but as an aiding material for stone and wooden structures, particularly in the form of anchors and ties for arch stresses. The antique had avoided as far as possible such visible means of construction, that must produce reflections on their permanence; the Renaissance made abundant use of them, not only in arched passages but even in great halls and churches. The walls consist of a masonry nucleus, either of rubble or brickwork executed with asphalt or lime mortar, in which the openings for light

and the supporting points are omitted for the finally applied facing with ashlars. In the dressing of the latter the Renaissance shows itself very fertile on the side of form. Before it ashlars mostly had smooth external surfaces. But besides these, ashlars with bosses and drafted margins were common in antiquity among the Greeks, Etruscans, Romans, and in the Romanesque period, particularly in fortifications, combined with smooth stones having ornamental chiseling, and in the Romanesque period was common the moulded border with smooth boss. T The Renaissance adopted anew these modes of cutting ashlars as a very important decorative means for animating wall surfaces; these were richly treated in the form of square or rectangular diamond ashlars and those with flat raised bosses, and these were either used uniformly over the entire facades, or with a certain graduation, so that bold and irregular bosses were arranged for the lower story, for the second a regular jointing with flatter ashlars, with entirely plane ashlars or smooth coursed masonry in the upper story. (Fig. 209). From the irregular and dry treatment with bosses this method received the name of rustication, that was also transferred to ashlars with more careful treatment of the faces. The rustic work presents "a representation of rude strength in alliance with the arranging and creative spirit of man". -- Besides this masonry with a facing of natural stones, there is also such with bricks left visible, these being frequently stained red with white joints, usually as a covering of the wall between the cut stone architecture, frequently in combination with plastered and painted green surfaces, also by a network pattern of red and yellow stones. This mode of decoration was translated into nobler stone for particularly dignified constructions, and thus i into facings with slabs of marble in surface patterns of different colors, a procedure that greatly flourished, especially among the Venetians. Greater favor was already enjoyed in the early period by terra cotta, both in natural colors as well as with variously colored glazes, and indeed for architectural enclosures as well as for purely ornamental decorations. If inferior and unequal materials were employed for the walls, a p protective coating of lime plaster was given to them, to which was sometimes given an artistic effect by the sgraffito to be

described later. A building material very flexible for relief decoration was thus secured in stucco (see volume 1, page 76), of which excessive use was made, especially by the late Renaissance.

Wood takes but a modest part in the external constructions of Italian art; it is chiefly limited to the strongly projecting (up to 6.56 ft.) roofs, which are artistically treated as a wooden cornice with console-like ends of purlins and rafters. The Florentine and Pisan palaces acquired by this a very effective termination of the facade.

For the roof construction as a rule was chosen hri low purlin roof covered by hiles on metal plates, more rarely (in Genoa) with slates, and for slight inclinations, stone slabs.

The internal ceilings were constructed either in wood as horizontal layers of beams and ceiled beneath, or solidly in stone as vaults. For the latter the cross vault continues in use; but the ribs of mediaeval form are only retained in the early Renaissance; later the cross vault occurs almost always in the Roman form without ribs, the groins diminishing upwards towards the vertex. The tunnel vault came into more common use again, as a rule being subdivided by dropped arches and coffered after the antique form. Over winding stairways it becomes the a annular vault. A new form was introduced by the Renaissance in the coved and panel vaults, which were preferably employed over corridors, vestibules, stairways and festal halls. They rested on the impost cornice crowning the walls as a broad cavetto, above which the middle panel (mirror) extended as a very flat vault. The panel received a gold frame run in stucco, in geometrical lines in the Renaissance, later in curved ones. This sort of vaulting proved especially favorable, since it r required but little height and presented large undivided surfaces for the representation of relief and picturesque figure compositions. The execution followed with tiles laid flat in excellent stone and mortar; it placed great demands on the skill of the workmen. For great spans men preferred the sham vault already recommended by Vitruvius, built of wood with laths or board sheathing and a coating of reeds and plaster. S Strong vault thrusts, when no tie rods were arranged, were fre-

frequently opposed by a corresponding strengthening of the walls by buttresses, which then extended their entire height with the same thickness, with cornices broken around them and airy caps like tabernacles instead of finials.

Dome construction received a greater development. Models for this were afforded both by the examples given by the Romans (in the Pantheon and the temple of Minerva Medica; volume 1, pages 135, 139) with circular or polygonal substructures, and also by the Byzantine system, which transferred the square ground form, by means of pendentives (volume 1, Fig. 178) in the form of spherical triangles or trapezoids, to the base ring of the dome, above the cornice of which rose the dome. Smaller domes were mostly built solid and were not rarely covered by a pyramidal roof, larger ones being erected in two shells (after the model of the dome of the cathedral of Florence, page 171), the external one chiefly having the purpose of protecting the internal one from the injurious effects of the weather. Therefore the great domes became comparatively light, but by the proper stiffening of both shells secured nearly the resistance of solid construction. The grandest dome construction of the Renaissance is represented by the dome of S. Peter at Rome. Michelangelo had arranged iron anchors in the drum in his model and iron rings in the dome, which were later increased (now five in all). For a third of the height both domes are built solid as one; then they separate into a thick internal dome and an external dome, which consists of a thin shell extending between strongly projecting ribs and covered with lead. (Fig. 210). In the hollow space between the two domes double winding stairways lead up to the lantern, then down again to the main cornice of the inner dome. Only by these s stairways are the two domes connected together. With the vast internal diameter of 139.8 ft. (i.e., 39.4 ft. more than in S. Sophia), the dome of S. Peter's rests on a drum extended high above the roof of the colossal building at a height of 264.4 ft. and thus attains to the height of 404.9 ft. to the eye above the pavement. Thus aside from the perfectly harmonious control of the material and its architectural subdivision, it appears as the grandest structural work, that the history of

architecture has to exhibit anywhere.

III. The Architectural Treatment.

Still more decidedly and expressively than in the construction did the Renaissance apply itself to the architecture and decoration of the antique. It was then unavoidable, that at first only the most striking adoptions again found employment, frequently without organic propriety. The mediaeval arrangement of the ground plan and proportions of the mass of the structure yet continued for a longer time. To the facades were given a plinth as a base and a crowning main cornice, the wall surface lying between them having a subdivision into stories by belts. The wall surface was suppressed in the Gothic as much as possible, but again entered into its rights as such a and was strongly accented by rustication. The profiles of the belt and main cornices still show a very uncertain handling i in the first time; it finds the beautiful more by an unconscious feeling of tact, than by a knowledge of the system. It is also at first less the correct and strong forms, than the happy distribution and the mass relations of the doorways and windows with their enclosures and the expressive development of the wall surfaces themselves, which carry in themselves the n new elements of beautiful forms. To these are further added niches, balconies, bay windows, loggias, and at about the end of the early Renaissance, the entire antique system of pilasters and columns with its orders for the supports and entablatures, and furthermore already at the beginning of the Renaissance, an extremely rich decoration by relief and painted ornament.

The plinth in the early time chiefly consisted of slabs without mouldings and set on edge, in Florence of a low stone bench; in the high Renaissance, it was divided into three parts, after the model of the antique pedestal of a column.(Volume 1, page 126). The belts in the Florentine Renaissance were all continuous window sill belts with the profiling of the antique impost cornice; later they were lowered to the levels of the floors of the different stories, then receiving bolder forms with a tendency to the antique belt cornice. If bricks were employed for this, then slight projections were given to them,

but richer ornamentation. In cities with increasing population one also meets with projections of the upper stories on round arches with consoles or directly on stone consoles, even if far less commonly than in the North.

As a rule the main cornice adheres closely to the Roman modillion cornice (Compare volume 1, Fig. 131; volume 2, Fig. 211), but it was also freely treated in wooden construction with plastering on reeds, as a great cavetto in combination with round arches and colored decoration, thus forming an extremely m magnificent crown to the facade.

The portals in the Florentine early Renaissance have a semicircular top with a wide moulded enclosure. (Fig. 209). In Lombardy they are quite early enclosed by pilasters and even by candelabra -- columns with antique entablatures and rich ornamental work. (Figs. 212, 261). Instead of pilasters sometimes occur in Genoa, Umbria and Rome half, three-quarter and full columns (Fig. 213), as well as double columns with figures and pediment or segmental caps, and also finally with projecting columns, hermes or caryatids as supports for the balcony projecting above them. In the form and treatment of the w window at first there still reacts the mediaeval tradition. They ended in round arches, frequently coupled by the insertion of a middle column. (Figs. 215, 250). The profiling of the enclosure generally follows the antique architrave. In the h high and late Renaissance the window chiefly assumes the form of a vertical rectangle. It is then preferred to crown it by a frieze and cap (Fig. 216, 173), whereby these frequently rest on consoles. (Fig. 263). With a richer treatment of window enclosure forms an independent architecture of pilasters and columns with a parapet like a pedestal and an antique entablature, on which rests also a pediment or arched cap (see windows in Figs. 151, 157). As in late Roman art, likewise in the Renaissance, niches with round arched tops, frequently decorated by a shell (Figs. 251, 222, 268), became a favorite motive for animating wall surfaces and for the reception of statues. Balconies were not limited to a single window (Fig. 216), but frequently extended along an entire facade. (Fig. 252). If t the face of the story above them be not set back, they were c composed of projecting stone slabs on consoles and furnished

with a railing, whose rail was at first supported by decorated
slabs or little columns, but at about the end of the 15 th cen-
tury by balusters, a form of small free support exclusively be-
longing to the Renaissance, that indeed recalls the antique f
form of the candelabra, but is here quite differently employed.
Bay windows likewise occur in the Italian Renaissance, even if
less commonly than in northern art. They appear in the South
more as covered balconies. But so much the more common are
loggaias, which already in mediaeval Venice form a design char-
acteristic for the art of the city of the lagoons, and may we-
ll from thence have found the way to the remainder of Italy.
182 They afford protection from sun and rain, give space for a gr-
eater number of persons, and thus so properly correspond to
the Italian climate. The high and late Renaissance again adop-
ted a motive introduced from the antique, the attic (volume 1,
page 107); this frequently increased to a separate low story
provided with small windows (Fig. 236), and it occurs in comb-
ination with balustrade terminations and figure decorations.
(Fig. 2:2). The pediment first came into more extended employ-
ment in the late Renaissance, yet more in church than in secu-
lar architecture. Villas and the better class of dwellings o
often received above the roof an addition like a portico, ter-
med loggetta or belvedere, on piers or columns with architrav-
es and a low hip roof.

Facade architecture attained a grander development about the
end of the early Renaissance and in the high and late Renaiss-
ance by the odoption of the antique system of pilasters and c
columns in all external architecture. Nearly all the more im-
portant masters investigated the "orders of columns" of the a
ancients and fixed their proportions. Already the learned Al-
berti wrote a treatise, in which he fully expressed himself in
regard to the columnar orders; the theorists Vignola, Scamozzi
and Palladio did this later in a far stricter sense. They t
took the system forun on the Roman monuments for the Tuscan,
Doric, Ionic, Corinthian and Composite orders (volume 1, page
108 et seq.) without substantial alternations, and thereby es-
tablished a canon for the monumental treatment of facades, wh-
ich remained in force until the most recent times. Figs. 217,

243, 259, 262, 273 and 275 exhibit how, though somewhat unres-
trained in conception from the beginning, the mature style gr-
adually developed.

The Renaissance worked out an endless variety in the forms
of details. By an extremely capricious fusion of Ionic and Co-
rinthian forms and the intertwining of conventionalized and n
83 naturalistic foliage with emblems, animal forms and figures,
were produced new capitals for columns and pilasters in lavish
abundance. (Figs. 218, 219). The shafts of the columns were
richly ornamented by flutes, cabled or plain, by small figures
and festoons on the lower third, and even with ornamental work
covering their entire height (Fig. 220), and likewise the pil-
asters had vertical bands of scroll ornaments in sunken panels
(arabesques; Fig. 222). With equal luxuriance were decorated
the entablatures, the arch spandrels and even the pedestals of
the columns. The early Renaissance shows itself in this resp-
ect more tolerant and fertile than the developed style, by w
which certain limits were placed for purely ornamental art for
the benefit of the predominant architectural effect. Beside
the columns, piers with square, rectangular and octagonal sec-
tions, candelabra-columns, particularly in upper Italy, hermes
(i.e. busts with supporting piers diminishing downwards, Fig.
274),as well as caryatids and atlantes (volume 1, pages 70, 82)
found employment as free supports or as those attached to the
walls. But the latter do not, as in the antique, have an ind-
184 ifferent pose, but as the supports of the balconies and ceili-
ngs, they oppose themselves with visible expression against t
the loads resting on them. Since the great architects of the
Renaissance were also sculpturs and also mostly painters, they
had relief and painting at command, and they placed these in
the richest measure in the service of architecture.

IV. Internal Architecture and Decoration.

Like the antique in its time, the Renaissance transferrred
in a similar manner the architectural system developed on the
facades also to the internal architecture, so far as this cor-
responded to the intended purpose of the room. But in this
church buildings did not come into consideration, or at least
not chiefly. As a genuine "art of living", their attention

was devoted in equal measure to the palace of the noble and e even to the dwelling of the well to do citizen, in order also to give to it convenience, comfort and artistic beauty. Thus the great halls, reception and living rooms were then treated as impressively as possible, and not only these, but also the entrances to them. Since the state and living rooms were no longer on the ground level, as in the antique house, but lay in the upper story, the construction of the stairways rose to great importance. In these the Renaissance created new architectural types almost without models. The narrow winding stairways of the middle ages were only retained for the servants' and subordinate rooms. For the main stairways were chosen straight flights of stairs with resting places (levels), convenient and low steps. The early Renaissance chiefly placed them in one of the porticos surrounding the court (Fig. 185). But the high Renaissance and yet more the late Renaissance erected spacious and inserted stairways as imposing show porticos in the great style, treated with costly materials, excellent sculptures and rich paintings on the walls and ceilings.

165 The floors, in case they were laid on masonry ceilings (vaults), consisted of smiple structures of terrazzo (i.e. bits of stone rolled into a layer of cement, rubbed down and polished), in richer ones of glazed clay tiles, marble slabs and mosaics; over wooden ceilings were adopted a simple board covering or a parquetry floor.

With extreme richness and variety were the walls decorated. On them the great sculptors and painters, working together, f frequently produced results of the highest artistic worth. With execution in relief the architectural subdivision of the w wall was always treated according to the antique principle with plinth, a row of pilasters, whose corneces and panels enclosed in the intervals formed the basis. The members, frieze and panels received a rich relief for painted ornamentation, whose charm was based on the refined graduation of the architecture and ornament, and the pleasing treatment of the details. (Fig. 222). Likewise in exclusively painted decoration the conception is chiefly architectural (Fig. 223); plinth, pilasters, frieze and cornice were still painted in simple colors

in the 15 th century (gray on gray or brown on brown), but later is varied treatment. Instead of a facing with the nobler kinds of stone or with stucco usually appeared wooden paneling, either in almost the entire height of the walls, so that above the cornice only remained space for a painted frieze as the upper termination of the wall, or as a high parapet. In secular buildings the walls in rooms serving less for state purposes were almost entirely hung with fabrics, stamped leather and woven fabrics, and finally were covered by painted or printed papers. As special show pieces were the mantles treated. They had an architectural construction with pilasters or columns, sometimes also with atlantes as supports of the cornice and c crowned by caps like pediments or by coats of arms in relief.

If the ceilings consisted of horizontal layers of beams, they were treated as coffered ceilings, either by a ceiling on the beams and the placing of bands, or by timbers inserted between the beams and correspondingly covered by paneling and mouldings. Prototypes for these existed in the portico ceilings of the antique,(Volume 1, page 65), and in the coffers of Roman vaults. (Volume 1, page 113). In the Renaissance these ceilings were frequently enclosed by rich carved work, painting and gilding to transcendent splendor. The panels (coffers) were originally square, later hexagonal and octagonal with triangles lying between them etc., and shaped in star forms. In the late Renaissance (first in the Doge's palace at Venice, after 15.0) the uniform division into coffers was abandoned in favor of a large middle panel enclosed by a wide gilded frame, and containing figure compositions of the grand style in naturalistic colors on the background. By these the design of the interior was elevated, and the impression was created, that t the ceiling was perforated, permitting a view of ideal architecture and landscapes, variously colored figure groups and the like. In well calculated graduation then the paintings of the subordinate panels are kept in a single color (in brown, gray or a bronze tint). Likewise on the vaulted ceilings of about the same time are omitted the originally prevailing coffers in favor of a similar division of the surfaces of the vaults into panels, in which painting finds space for earnest historical

representations, as well as for the development of rich ornamental magnificence.

To the ornamental arts fell an infinitely greater importance than as in the middle ages. The enjoyment of ornamental work had become more intensive and general. With spirited recognition were pursued the works of sculpture, of painting, and of the minor arts; they were then prized more for merely esthitic enjoyment than as mental representations, though pleasing to the eye. Thus figures and scenes from the ancient myths reappear as favorite motives and even penetrate into consecrated places. The high nobility of form of the antique art became again the chosen ideal of the Renaissance master. Yet formal beauty indicates only one basis of their artistic creation, i indeed not one of the most important. The aim of the Renaissance lies in an expressed realism, which instead of general t types sought to present a picture of the actual world with the diversity of individuals by the strongly emphasized expression of character and impulse in the face, figure, movement and clothing, with the entire surroundings in space in complete truth to life. Therefore sculpture in relief produces a representation of the figures with architectural and landscape backgrounds viewed in perspective (Fig. 225), and it sometimes even t takes into its service the sister art (by painting and gilding the whole or certain parts). This fresh conception of nature is especially peculiar to the works of the Quattrocento. In the high and late Renaissance occurs -- in relief core than in painting -- among the conscious antique tendencies, the generalized endeavor for purely formal beauty again becomes stronger in the foreground.

Monumental sculpture received its chief problem in the production of figure decorations by statues and reliefs for facades (on portals, in niches, as crowning roofs), in the internal architecture of churches (on altars, pulpits, tombs and the l like) and of palaces (on stairways and on mantles in the great halls). The minor reliefs were applied to the rich decorative ornamental work. Its conventional development proceeded according to the tendencies mentioned above. All technical methods were included in the domain of activity; sculptures in nob-

noble and common stones, in stucco, bronze, terra cotta and w wood. Sculpture in stone and in stucco became general, the first chiefly in external architecture, the latter (after the middle of the 15 th century) came into use in the internal ornamentation. casting in bronze reached high perfection. Already with the beginning of the early Renaissance, the Florentine Ghiberti, a contemporary of Brunelleschi, had created in the eastern bronze doors for the baptistery at Florence one of the most famous masterworks of sculpture. (Fig. 225. *). Terra cotta, likewise by a Florentine master of the Quattrocento, Luca della Robbia, was elevated to a new species of sculpture, when he produced his figure reliefs in medallion form in colored glazed clay in an ideal beauty of treatment of form and c color. An important place was further taken in the Renaissance by decoration in wood, both in a purely architectural use (supports, cornices, frame enclosures etc.), as well as in we wood carvings. Their execution occurred partly in the round , partly in high and low relief, or lying entirely flat in the surface as inlaid work, or as intarsias (marquetry). This technical procedure was already proved in antiquity; it was again revived in the middle ages and reached the highest perfection in the early Renaissance. The method of execution consisted in laying thin veneers of different woods on each other, ivory, mother of pearl and metals, then sawing them out at the same time, properly interchanging them, glueing and laying them. The drawings still consisted of geometrical patterns in the middle ages, almost always in black and white, but after the beginning of the 15 th century were ornaments, architectural perspectives, landscapes, and even representations of figures.

** These doors contained in 10 panels figure reliefs, which represent scenes from the Old Testament, from the creation of man onwards. Michelangelo was so enraptured by their beauty, that he said, that they could stand at the gates of paradise.*

To monumental painting fell the rich colored ornamentation on ceilings and walls. In the 15 th century it chiefly sought to imitate architecture by a colored coffering of the vault c compartments and architectural perspectives with garlands etc.

on the wall surfaces. The larger mural paintings were enclosed by bands of ornament, that are again interrupted by smaller paintings contained within circles and polygons like medallions. In this manner the meaning of the great paintings was brought into harmony. As the technical method, fresco (volume 1, page 125) almost exclusively came into use, which showed itself to be very suitable and durable for the internal architecture. Likewise on the facades the enjoyment of artistic decoration frequently no longer left free the plastered surfaces between windows and cornices; they were then covered by ornamental or figure paintings in fresco or in the more durable sgraffito. In the latter case the wall surface first received a d dark (mostly black) background, then a thin white or light yellow coating over this, in which by means of properly shaped p points and scrapers, the design was produced by removing the coating in lines or spots. Thus had been obtained a facade painting, which was as durable as even the plastering itself. Likewise chiaoscuro ("light-dark") frequently came into use, a painting with but one color on the wet plaster ground.

About the end of the 15 th century, suggested by the discov-
192 ery of the Baths of Titus in Rome (volume 1, page 114), was perfected a great transformation in the decoration and indeed chiefly in the ornamentation of the internal walls and ceilings. In a variegated alternation and combination of stucco with painting were interwoven, starting from the antique prototypes of "grotesques", ornamental motives of all kinds, human and animal forms, fabulous beings, implements of technics, art and science, fanciful architecture, events from mythology, poetry and history, also landscapes, often enclosed as small pictures within delicate frames of stucco, with ornamental work, especially acanthus scrolls, garlands of fruits and foliage, bands and knots. The most charming forms and colors were thus enchanting in a blooming and inexhaustible artistic imagination, which combined the separate pictures into a rapturous play on the walls and ceilings, controlled by the most refined feeling for a cheerful and ornamental effect. All details were executed in perfectly graceful drawings; the whole covers the s shafts of the main and subordinate pilasters and their bands,

as well as the enclosures of the parts of wall and ceiling in an entirely flat character, so that these decorations join in the general effect. By this method Raphael and his followers and pupils finished the loggias of the Vatican in Rome (1513-1519), thus creating the most beautiful and artistically interesting porticos in the world. (Figs. 226, 227). Their style of decoration thereby attained to classical importance.

Besides this ornamentally conceived decoration, there continued in use in the high Renaissance the decoration of walls a and ceilings by great paintings. Yet in accordance with the antique tendency of the time, the relief element in decoration became stronger, in order to produce a greater harmony of the subdivision of the wall with the architecture. The colored o ornamentation on the walls thus gradually receded in favor of the purely architectural ornamentation. The late Renaissance finally limited it in great part to the ceilings, indeed there to the large paintings in the main and some side panels (Fig. 224), while the others were left in white stucco and partially gilded. The tendency toward relief dominates even painting, which frequently falls into the imitation of architecture, sculptures and statues.

On facades after the beginning of the 16 th century, painted ornamentation already receded. Likewise there the essentials of the structural appearance consisted of the architectural f framework with the sculptures. Finally Renaissance decoration appears in complete dependence on the architecture and sculpture, certainly designed to enhance their pompous effects.

In ornament the basis was formed by antique ornamental motives and decorative forms, the Roman acanthus with its foliage and scroll work in combination with vases, candelabras, masks, cornucopias, trophies, bands, wreaths and garlands of flowers, with interwoven representations of figures, together with frets and wave lines. The foliage was taken from the native plant world and treated naturally or conventionally, in the latter case in direct connection with the antique. The masters here proceeded very properly, when they shaped leaves and scrolls to be executed in marble, differently from those in wood, and those in terra cotta again differed from bronze foliage. Pu.

Purest in drawing and execution appear the ornamental forms c chiseled in marble; for these are especially characteristic a again the panels cut in the pilasters instead of flutes.(rejected from the first in the Renaissance). The latter rise from flower corollas or vase forms as organic combinations of c
192 conventionalized leaf forms, particularly of the antique (Roman) acanthus and its interlaced scrolls (volume 1, Fig. 138) with naturally treated forms of all kinds, leaves, flowers and fruits, that either form a single stem of candelabra-like flower stalks growing above each other with corollas and vases, or follow a series of spirals, the whole animated by birds and other animals, as well as fabulous beings, heads and feet of animals, which directly pass into the plant work. (Fig. 228). Other panels consist of trophies, weapons and coats of arms, that are grouped together with objects of the most different kinds, and are ornamented by conventionalized and natural foliage and scroll work. This ornament already received in the Quattrocento the not exaclly appropriate appellation of "arabesques". (Volume 1, page 214). It appeared in the 15 th and the beginning of the 16 th century as a nearly independent result of the art of the time, and it essentially differs from the "grotesques" occurring in the first quarter of the Cinquecento. The arabesgne is always a surface decoration generally arranged according to geometrical rhythm, filling, connected and growing by itself, which was originally executed in relief. (Fig. 228). But the grotesque rather represents a loose and fanciful arrangement of the motives from art, nature and life in a continual alternation of ornamental work with framed pictures, medallions and shields, executed as a combination of ornamental relief in stucco with painting. (Fig. 227). The grotesque also experienced an infinitely more varied use, when it was no longer restricted to the frames and the character of t the ornaments filling them, but also extended over larger portions of the walls and even entire ceilings. (Fig. 228).

After the grotesque ornament had reached its cilmax in the Vatican loggias, it rapidly receded. The decorations created with refined and tactful feeling in perfect harmony by an art caprice adjusted most happily must lose their charm, as soon

as they were transferred in a merely imitative way by less gifted artists to areas, for which the originals were not intended. To this was added the great predominance of the architecture Calculated for a general structural effect, which so far as t the works of the severe theorists did not come into consideration, was corrupted almost capriciously in its profiles, and the love for individual things was no longer applied to the details, but was based on their former treatment. The relations between figure and pure ornament, so carefully adjusted in the best period, between stucco and color, area and frame of the picture, became variable and uncertain. The composition fell into a patterned and expressionless series of lines, into a heavy treatment of details overloaded in relief. Thus the decoration lost its importance and its esthetic intent in the same measure, in which the architecture passed into the grandiose and must strive for that scrupulous heightening of the e effect, that should aid the imperious feeling of the owners, directed toward the pompous in the late Renaissance.

173 V. The Architectural Works.

A. Church Architecture.

The dominant circles in the Christian church at the appearance of the Renaissance were still too greatly embarrassed by the mediaeval conception of art, that they could not at first meet it with a full understanding. They remained alternating, varying and uncertain toward the new movement, even if they d did not oppose most decidedly its "entire nature and tendency" and that of humanism as a dangerous intellectual tendency based on pagan views. But after the Renaissance had explained itself and had reached a certain maturity, the Roman papacy -- and this merits special consideration -- saw in "the adoption" of the genuine Renaissance in the ecclesiastical circle of ideas, an extension of the limited mediaeval idea into a generality. * Thereby ecclesiastical art was led out of the restraint of the Gothic world of form into a freer activity, appropriate to the time.

* *Kraus. Geschichte der christliche Kunst.*

The most important innovation experienced by church architec-

architecture in the period of the Renaissance consisted in this, that men no longer held themselves bound to the ritual basilican system, but saw in the central building, whose precursors in the round and polygonal structures of the Roman, Early Christian and Romanesque periods still in great part remained before their eyes, the most perfect model for the Christian H House of God. * * This afforded greatness, unity and uniformity in the creation of the interior, the most favorable arrangement of the light, and a harmonious subdivision of the interior and of the exterior. In it the high middle room covered by a dome formed the nucleus of the building, erected on a round, polygonal or square ground area, and to which was added either four tunnel vaulted cross arms (according to the model of the Byzantine church; volume 1, page 188), outer aisles, or a circle of chapels. Yet the central design did not exercise supremacy -- and aside from the chief works of the high Renaissance -- it did not once predominate over the basilican system. For this had been connected with the sacred tradition for so many years, for the idea to be suppressed, that it had the true and pure form of the Christian church building. To this was added, that the central structure still represented a scheme too strongly restricted in itself, that the enlargement of the interior and the addition of chapels and subordinate rooms with a free development of the facade, on which men placed special value afterwards as before, did not abbear as favorable. Thus in the early Renaissance beside the horizontally covered or cross vaulted basilica was developed the central building, as being on the whole a new form of church building in the West, and it attained in the high Renaissance its highest, nearly absolute perfection. In the late Renaissance men came to combine the central building with the basilica in the manner, that the former was chosen for the design of the choir and this was adjoined by a nave. Individually the Renaissance churches have the most decided variations in the ground plan and elevation; always characteristic is the unified creation of t the interior, the dome over the central area, or the transepts, and the architectural system peculiar to the Renaissance.

* * *How strongly the central structures with domes affected*

the masters may be seen, in that such already in the earliest time were represented with very particular favor on the backgrounds of their altar paintings and reliefs.

For buildings with naves the three aisled basilica, as it h had been developed in Romanesque art with its proportions of masses in the width of the middle and side aisles, formed the basal scheme in the arrangement of the supports and the division of the bays of the vaults. The vaulting was either executed in all the aisles or only in the side aisles, while the middle aisle either received a horizontal wooden ceiling, or if even more rarely and scarcely except in the early Renaissance, the visible wooden roof framework. The Renaissance generally continued as being opposed to the hall type. The churches of the Orders strove for simplicity and were mostly single aisled with a row of chapels at both sides and a horizontal c ceiling. From the middle of the 16 th century onward such single aisled churches were also preferred for parish churches a and were vaulted, either with a tunnel vault, intersected by the cross compartments over the windows, or by flat domes, arranged along the longitudinal axis. These single aisled churches extended by rows of chapels at the sides finally became the prevailing type of catholic church architecture. The towers (Fig. 229) in Italy in the time of the Renaissance also chiefly stand detached beside the building; only in the 16 th century were they sometimes arranged in pairs and included in the composition of the church. Particular attention was devoted by the Renaissance to the sacristies, which were arranged on the northern side of the church in the angle between transept and choir, for the safekeeping of the church vessels and vestments, for the library, and as a waiting room for the clergy, before and after divine service. They are mostly additions, indeed being preferably treated as small central structures and are frequently very richly equipped. (Figs. 222, 230).

The structure for single aisled churches shows a subdivision of the walls by pilasters or engaged columns with arches turned between them over the chapels or the window openings. For designs with several aisles columns appeared at first and indeed principally in the early Renaissance as supports of the

walls of the middle aisle with ceilings with the antique subdivision by beams and arched forms, or octagonal piers were employed in their places. In the high and late Renaissance the internal free supports are mostly in the form of square piers (Fig. 231) with half columns or pilasters projecting from their sides, to which corresponds a similar subdivision on the w walls. From the piers frequently rise cross arches, which span the aisles and divide the ceilings into bays. The walls in northern Italy often exhibit the natural rubbed sandstone, or they are satisfied with white plaster; but in the South they show a rich magnificence of color. The decorative equipment of the interior reaches its climax in the altars and particularly in the tombs, that exhibit the contemporary longing for fame; these in structure and in detail forms are treated in accordance with the architectural system of the Renaissance, and they are developed with very particular care in their painted and relief decorative work.

The external architecture at first retained the mediaeval system with a new clothing in the Renaissance forms. As in t the middle ages, it was chiefly executed later by facings, * and was limited principally to the front facade, the choir and the dome. The sides remained in the early Renaissance entirely plain without any subdivision; first in the course of the 16 th century did they receive a modest and similarly treated coating of plaster. The main facades at first follow the antique elevation of the Roman triumphal arch with an order standing on a high pedestal and with a crowning pediment. (Fig. 232). Later (first on the cathedral of Pienza in 1462) the church facade was chiefly arranged in two stories, perhaps caused by t the requirements of obtaining an elevated loggia for bestowal of the blessing. The architectural development of the facade for basilican designs presented many difficulties, in that a satisfactory ending in the front facade must be given to the low shed roofs of the side aisles. The problem was most simply solved by attaching a half pediment(with inclined ascending cornice) to the front wall of the middle aisle. For curved r roofs the quadrant was indeed also employed. Alberti chose t the volute as the termination of the shed roof on S. Maria No-

Novella in Florence (completed 1470), thus creating a motive, that the later Renaissance frequently employed, often superfluously. With such a form of facade the cross section is expressed in a facade but slightly or even not at all, and therefore it is only satisfactory in a slight degree. Happier are the solutions, in which the facades directly terminate in the form of the roof, indeed in a half or quarter circle, as on s some churches in Venice and on the islands of the Adriatic Sea. (Fig. 233). In the treatment of the portals, windows, cornices and the like, the developed Renaissance adheres always to the classical ground principles, but at the same time with the same richness as in secular armhitecture.

** By far the greatest number of the Italian Renaissance churches have never been completed externally, but have remained in the rough construction.*

Monastery designs were allied to to church architecture and retained the mediaeval grouping of the buildings, but by the beauty and variety of the portiocos around the courts with columns and piers, they again attain to a peculiar artistic importance. The monasteries of higher rank are usually extended a architectural designs, which compete in the equipment of certain rooms with the churches and the palaces of the great.

B. Secular Architecture.

The great Italian palace structures in the early and high R Renaissance still permit the endeavor of the ruler to be recognized, in consideration of frequently very stubborn opposition, to overpower rivals, leagues, cities and influential families, and to care for his personal safety, when he gave his residence the form of a palace indeed, but otherwise protected it. They surrounded their castles by moats and walls, built defensive towers at the angles, as well as also selecting a site protected by nature. First in the late Renaissance such arrangements were omitted. The ground plan varied in most of the building problems, but from the beginning onward it always forms a building area in regular geometrical (rectangular or even polygonal) form enclosing one or more internal courts, which always evidence a constant endeavor for suitability and convenience.

The palaces of the nobles already had a regular plan in the Gothic period (page 163), which was also retained by the Renaissance, and was further developed in its tendency to comfortable living and to show. In the different architectural regions were developed individual peculiarities. The earliest type is the Florentine -Sienese, which has a determining importance for all Italy, particularly by the advantages of its form of ground plan. The ground plan groups and indeed the halls for each purpose, among which are dining halls for each season of the year, house chapels etc., as in the antique house, around an uncovered court surrounded by porticos, from which are entered the rooms arranged in the ground story. In the upper stories are found closed corridors over the porticos, from which doorways lead into the halls. To the designs of stairways and the treatment of the facades have we already referred on pages 184 and 179. Likewise in Urbino, Ferrara and the Romagna the palaces follow the Tuscan model, also in Bologna, but there with the peculiarity, that the facades in the ground story next the streets are interrupted by continuous arched porticos.

The Roman palaces take from the Tuscan type the ground plan, but in the treatment of the facade are inclined to an expressed architectural treatment, as indeed best characterized by palace Farnese. (Figs. 251, 211, 258). The chief stress is p placed on a grand effect of the court, on which the open columnar or pier porticos frequently extend through several stories. The late Renaissance introduced in the facades in Rome as also elsewhere, particularly in Vicenza, Genoa, Milan etc., the "colossal order", i.e. a row of great columns or pilasters, which extend through all the stories from the plinth to the m main cornice. (Figs. 235, 273). Thus especially in the imposing facades of Michelangelo and Palladio the pseudoperipteral colonnade of the late antique again appears also in the late Renaissance.

In the Venetian palaces is expressed a strong reaction of m mediaeval art. The design of the building firmly adhered to the scheme developed by the Gothic. (Page 164). The chief attention of the master in the city of the lagoons was paid to

the ornamental, that in the time of the early Renaissance still chiefly assumed Gothic forms, but later a splendid columnar architecture with a cheerful intent.

Villa architecture took an important place with the general enjoyment of nature and the expressed inclination to staying in the country from the beginning in the Renaissance period. Men already early distinguished between the proper country house intended for a longer residence and the "suburban villa", a pleasure house located before the city for slight or transient occupancy. The ground plan had generally a symmetrical d design, in which the rooms were grouped around a rectangular or circular central hall. Since these buildings in the country were not intended for a development in height, they were mostly one story. The servants had their rooms in the cellar story or in the upper "concealed" half story (mezzanine) in t the late Renaissance, which in the time of the theorists also came into use in the palaces more and more as intermediate stories. The suburban villa was preferably placed on a gentle slope; it was invitingly and cheerfully treated.

In the high and late Renaissance great importance was attained by the garden and park designs connected with the villas. In direct connection with the villa was a show garden (Fig. 237) adorned by terraces, balustrades, flights of steps, fountains, cascades and sculptures of all kinds, accessible by magnificent gateways and with picturesque perspective views of d distant hills, cities and villages. In these Italian gardens predominated architectural lines, in contrast to the "English" gardens preferring free nature (see volume 3), and the former strove for a harmony with the buildings; they were conventionalized designs subordinated to the architecture.

The dwellings in the cities, like the palaces, adhered to t the antique ground plan as much as possible by grouping the r rooms about a court, surrounded if possible by porticos on one or more sides. The dwelling generally was in the upper story; the ground story being chiefly utilized for shops, stables, c coach houses and the like. For officials, artists and learned men houses for rental were erected already in simple and sometimes in rich treatment.

Contrary to Alberti's reference to the advantages of curved streets, * the city lay-out preferred a straight course for the streets. The more important cities competed with each other in the straightening of the streets and the preservation of continuous lines of houses. Everywhere men looked after o obtaining larger open squares, surrounded by sale booths and airy porticos. These and the streets in the more eminent portions of the city were paved, and the churches and public buildings were surrounded by raised walks.

** He said that the city appears larger, the houses present themselves to the eye with variety, shade was then wanting in no street, the wind was stopped, and defense against enemies was made more easy.*

Among public buildings the city halls stood in the foreground,(in Italy chiefly named palazzo communale, municipio, del consiglio, della regione etc.). In the early Renaissance they still have the castellated appearance with defensive galleries and battlements, but later are buildings like palaces with a regular arrangement of windows, widely opening entrance halls (Fig. 239), great stairways, large halls for assemblies and sessions, with wide corridors for access to the halls, and the smaller working rooms and the house chapel, seldom wanting in the city halls.

The universities (page 156), high schools, and which chiefly jurisprudence and medicine enjoyed a high regard in the Renaissance period. They retained in the early and the earliest high periods the traditional cloister plan, which also corresponded to the antique arrangement, and a suitable grouping of lecture halls and rooms around a quiet court enclosed on all sides was made possible. Later these buildings for instruction were elevated to magnificent structures in a grand style w with impressive courts with portocos and grand stairways.

In close relations with these stood the libraries, elongated and in one or more stories, well lighted, mostly richly decorated rooms with cases or chests along the walls for the preservation of the books and with tables for writing and reading. They were not alone erected as state buildings; nearly every city had its own library.

It confers particular honor on the Renaissance, that the hu-

humane tendency of the age is also recognized in the care for the physical welfare of the sick and the poor by the erection of hospitals. These are frequently great and monumentally treated architectural designs with open entrance porticos, spacious, light corridors, large wards for the sick, and the subordinate rooms for physicians and servants, arranged around airy internal courts with thorough regard to the special requirements of these buildings and their sanitary arrangements,.

For commercial traffic served the market halls, i.e., spacious covered porticos, open on two, three or on all sides. For public assemblies of the council, of certain corporations, and even of certain families on particularly important occasions loggias were erected as vaulted arcade porticos, such as partly already occurred in the middle ages. (Page 163).

The public fountains in the period of the Renaissance attained to an importance as ornaments of the public squares, similar to that formerly in the Roman state. They are in part detached buildings with prominent figure representations, in part architectural show pieces in the form of the antique triumphal arch with rich sculptures. Likewise monuments, especially bronze statues with carefully proportioned architectural substructures, were erected in great numbers as a visible expression of the strongly developed feeling for personality and the reverence for fame in the time. Even the ancient Egyptian obelisks came into honor again, when they were chiefly procured by the Roman popes and erected on great squares.

On the contrary the theatres by far did not occupy that position, which they had in antiquity. They were mostly built of wood after the ground plan of the Grecian theatre with a stage of small depth, that in part already presented a view of the city constructed in perspective with a painted background. ((Figs. 272 a, b).

With the public buildings are further counted the fortifications, which experienced a thorough transformation in the Renaissance. With the introduction of heavy cannon, the high gate towers lost their former importance. In their places appeared low and broad gateway structures, which by a rusticated facing with pilaster and columnar architecture acquired a fri-

friendly, rather than a defiant expression. (Fig. 260). The mediaeval battlements possessed no further value. Bold cornices, often resting on consoles, rusticated ashlars at the angles and also in part on the wall surfaces form on these and on the bastions the most common artistic means of expression for the architecture of fortifications. Finally we have yet to m mention the bridges, which likewise by the adoption of the Renaissance treatment with a tendency toward the forms of ancient bridge structures, were drawn within the circle of the beautiful.

VI. The Most Important Monuments.

1. Early Renaissance.

TUSCANY AND MIDDLE ITALY. -- The grand series of architectural monuments of the Italian Renaissance was commenced in Florence by the works of its first chief master and founder, the genius Filippo Brunelleschi (1372-1446). His earliest and epoch-making great work consisted in the previously mentioned erection of the dome of the cathedral of Florence. Almost contemporary with this (1421) he began the new building of S. Lorenzo as a three aisled cross basilica with rows of chapels along the sides, side aisles vaulted by domes, horizontal ceiling in the middle aisle (Fig. 240) and a low dome without drum. In his second larger church building, S. Spirito (begun 1436), likewise a cross-shaped columnar basilica, the master already exhibits a substantial advance from his system developed in S. Lorenzo. The ground plan comprises a Latin cross consisting of two rectangles of equal width. The side aisles are there extended by semicircular chapels and are carried around the nave, transepts and choir. (Figs. 241, 242). Both churches w were first completed after his death. Unfortunately they remain without facades. The new ideal of the central building w was carried out by him first in the old sacristy of S. Lorenzo, with which he began the erection of the church, then in a more mature form in the Pazzi chapel (1430-1443), indeed on the ground plan of a not fully developed Greek cross with low dome on a low drum, a work that in beauty of the interior, clarity of structure and treatment of the details, belongs to the noblest, that the Renaissance has produced. Brunelleschi was also the

founder of the Florentine palace style. He introduced rusticated ashlar construction, and created in palace Pitti (about 1440) an extremely impressive model for its use, though only a part of the building can be attributed to him. Furthermore also in the earliest of his secular buildings remaining to us, the upper story of paleca di Parte Guelfa (after 1418), although even if the facades are still timorous, they are subdivided by pilasters, and in the portico of the Foundling Hospital (designed in 1419) he established a columnar structure with round arched arcade in strictly classical beauty. (Fig. 243).

Among his successors is first to be mentioned the Florentine Michelozzo di Bartolommeo (1396-1472); he was originally a bronze-founder, then a sculptur in stone, and finally (after 1455) court architect of the Medici in Florence. To him is due the origin of the beautiful passage to the sacristy and the chapel of the Medici in S. Groce in Florence, that still stands on the transition stage, and the new building of the monastery of S. Marco (1437-1443) with a splendid cloister and grand three aisled library hall. The master attained greater importance in palace architecture. Palace Riccardi in Florence, formerly erected for the Medici and probably in the thirties (1430-1440), is his work. (Fig. 209). His beautiful columnar court with Composite capitals is the model for countless palace courts of the 15 th century.

Michelozzo's pupil and successor was Giuliano da Majano (1432-1490). Like Michelozzo he was cathedral architect in Florence, busied himself in church architecture chiefly by restorations and extensions, erected in Siena palace Spannochi, a refined repetition of palace Riccardi of Florence, and was also engaged in Naples, as we shall see later. (Page 213).

An independent position is occupied by the learned and many-sided Leon Battista Alberti (1404-1472), one already belonging to the most fertile leaders of the Renaissance by his writings on architecture, sculpture and painting. Doubtless he stood nearer to the antique than to his contemporaries. Yet he invariably demanded an independent , i.e. a creative position for the prototypes. In the year 1446 he commenced his first church structure in the rebuilding of S. Francescn in Rimini, of

which the but partially executed facade in the lower story is imitated from the arch of Augustus in Rimini. In the same year he began palace Rucellai in Florence, whose erection he entrusted to Bernardo Rosselino. (According to recent investigations, this palace must certainly belong to Rosselino). In this structure Alberti undertook an advance, fluitful for the further evolution of the Renaissance, when he allowed the rusticated ashlars to recede and subdivided the facade by pilasters set above each other in the Roman arrangement. (Fig. 217). The church of S. Sebastiano in Mantua was commenced in 1459, now existing only in ruins, he for the first time based on a pure Greek cross. In S. Andrea there he established a model for single aisled churches with wide side chapels and a coffered tunnel vault (Fig. 244), and a portico with pediment occupying the entire height of the interior, on which we find again the classical system of the temple facade. (Fig. 232). For S. Maria Novella in Florence he designed for the Gothic building the incrusted facade with the volutes already mentioned on page 196. Whether the design for the palace della Cancellaria in Rome, recently attributed to him, was by him is not yet assured.

Alberti's pupil, Bernardo Rosselino (1409-1464), was chiefly employed in Florence as a sculptor in stone. From 1460-1463 and in the service of Pope Pius II as architect of the city of Pienza, named after him, he erected the facade of the cathedral (page 138) and palace Piccolomini, whose facade is entirely arranged on the system of palace Rucellai in Florence.

Among the remaining masters of the Florentine early Renaissance, Giuliano da Sangallo (1445-1516) occupies a prominent place. He was cathedral architect in Florence and finally even the leading cathedral architect of the church of S. Peter in Rome. His little church of Madonna delle Carceri in Prato, he erected in 1485-1491 as a central structure with a central dome and four tunnel vaulted cross arms. (Fig. 245). In its proportions it is a simple and noble creation with the happiest effect, that has frequently found imitations in modern country chapels. Likewise the beautiful octagonal sacristy of S. Spirito in Florence (1488-1492) was treated on the central sys-

system by Giuliano da Sangallo. Of his palace buildings, palace Gondi (1490-1498) is that best known on account of its magnificent columnar court with the picturesquely inserted stairway. (Fig. 221). For the grand palace Strozzi (Fig. 246), which was begun in 1489, the master furnished a model. His part in the execution itself is not yet determined. As its chief master is rather mentioned Benedetto da Majano (1442-1498), w who also created the charming portico of S. maria delle Grazie near Arezzo. (Fig. 247). Palace Strozzi is the most impressive rusticated structure in Italy. The very effective main cornice was constructed in the year 1500 by Simone il Cronaca (145/-1508) as an enlarged imitation of a Roman cornice. By Cronaca is likewise the court of palace Strozzi, and further . the noble palace Guadagni, in which the upper story forms an open loggia extending along the entire facade beneath the widely projecting roof, also San Francesco al Monte before the gate S. Miniato, a church of a mendicant Order with visible framework of the roof, whose simple beauty also surprised Michelangelo. Antonio da Sangallo (the elder; 1455-1534), a brother of the Giuliano mentioned abowe, in his chief work, the central structure of the Madonna di S. Biagio near Montepulciano (1518-1537), already stands on the stage of the developed style of the high Renaissance. (Fig. 248). -- The three masters just mentioned are the last representatives of the Florentine early Renaissance; in them was completed the transition to the high Renaissance.

The influence of Florentine art was expressed with particular strength in the neighboring Siena, where the early Renaissance took quite the same development. There arose a powerful leader in Luciano da Laurana (died 1479), the creator of palace Prefettizio in Pesaro (begun before 1465), on which for the first time the window enclosures are treated as pilasters with entablatures,and the famous ducal palace at Urbino (after 1468) with a columnar court of extremely noble design. Laurana rejected rustication in favor of a stately architectural subdivision. More purely than all his contemporaries did he comprehend the classical expression of art and bring it out in his works.

UPPER ITALY. Here the traditions of Gothic had an infinit ly greater effect than in Tuscany and middle Italy. Still a about the end of the 15 th century (1487) were architects ca led from the North to Milan for advice to the masters carryi on the erection of the cathedral. And yet the refreshing br eze of the new spirit makes itself perceptible on Lombard so in the entire art life. It is particularly noteworthy, that here, where Romanesque art was so deeply rooted in the popul feeling, many masters found the way to the Renaissance in th return to early mediaeval art forms. Romanesque columnar ga leries again appeared (Fig. 249) with the characteristic cor er leaves on the bases of the columns, yet with capitals, th already belong to the new treatment of the forms. Thus in u per Italy was completed the transition from the middle ages the Renaissance in a peculiar style, prevailing until the en of the 15 th century, with combined classical and Gothic mot ves having a rich picturesque effect and a strong charm in t treatment of details. In the entire first half of the 15 th century it still bears a predominant Gothic character; then the harmonious keynote of the Renaissance ever more strongly appears, until at the end of the century it acquires entire clarity and purity.

The first important works of the Renaissance in Milan are referred to a Florentine, Antonio Averlino, named Filarete (1410-1469), who was called by duke Francesco Sforza to erect a castle there (1451). The parts of the structure erected by him no longer exist. Yet his chief work, the Great Hospital (Ospedale Maggiore), of which indeed only a portion was execu ted by him, affords evidence of his altivity. Filarete, the inspired adherent of classicism and expressed enemy of Gothic entered into a compromise with it as a concession to Lombard taste, when he employed the pointed arch on the windows, cert ainly covered by the most charming Renaissance ornaments.(Fig

* *Filarete about 1460 said of the Gothic: -- "Accursed be he that invented this blunder; I believe that only a barbarous people could have brought it to Italy".*

About the same time the church of Certosa near Pavia (page 132) received its external architecture in Renaissance forms,

yet with many reminiscences of Romanesque art. The magnificent cloister with small marble columns on attic bases with corner leaves and with arches and cornices of terra cotta (Fig. 249) belong to the best works of Lombard early Renaissance. A show piece of the rarest kind is the famous marble facade of the church, on which were engaged a great number of the most important sculptors, under the lead of Giovanni Antonio Omadeo (or Amadeo) from 1474 oward. In its transcendent wealth of s separate statues, relief panels and minor sculptures of all k kinds, it appears like a colossal marble wall covered by representations. (Fig. 250).

On the cathedral at Como, the facade was executed in 1460-1478in the Lombard mixed style between Gothic and Renaissance; then the sides of the old Gothic structure received facings in pure early Renaissance forms by the brothers Tomaso and Jacopo Rodari. The choir, transept and dome structure (begun 1573) already stand on the last stage of the transition to the high Renaissance.

About the end of the 15 th century, there appeared in upper Italy a powerful revolution, which was introduced by the beginning of the activity of a great master of the first rank, Donato d'Angelo, called Bramante (1444-1514), a pupil of the already mentioned Laurana in Urbino, and born in a village near Urbino. Bramante was one of those powerful and manysided Renaissance masters, whose ideas tended to grandeur, and who was gifted with a comprehensive view of the whole and an unusually excellent feeling for the effect of the interior, for the harmony of the structural masses, their subdivision, and for noble and beautiful proportions. Only the first time of his independent creation, of his development belongs to Molan (until 1499). In the year 1470 his activity in Milan commenced. His first work is the present transepts of the church S. Maria presso S. Satiro, built on a very limited area, that he covered by a central dome and two low tunnel vaults, for his characteristic conception of the choir facade, as well as the charming sacristy (Fig. 222), treated as a pure central building. In 1492-1499 he erected the choir, transepts and dome of S. Maria delle Grazie in Milan and the arched portico of S. Ambrogio. Also outside Milan several church buildings are referred to

Bramante in plan and also partly in execution. In their design he always gave the preference to the central building over the basilican type. We meet him again later in Rome, as the actual founder of the High Renaissance there. Yet already during his Milanese period, his influence was so great, that he gave his own stamp to the entire art of upper Italy. (Bramantesco stile").

Next to Milan the influential and splendid city of the learned, Bologna, formed in the Quattroceuto an important part of the art climax of upper Italy. Still in the 15 th century it was under the strong reaction of the Gothic. Even at the end of the century (about 1480) was erected a new structure (S. A Annunziata) entirely in the Gothic style. The early Renaissance expressed itself chiefly in additions and the rebuilding of older churches. So much more important is the palace architecture. We have already referred to the open arched passages along both sides of the streets (page 198); they impart to the view of the city an unusually friendly appearance. As in Milan, here also the cut stone architecture is transformed into brick, whose form treatment assumes an elegant gracefulness The earliest type of the numerous Renaissance palaces of Bologna is represented by palace Isolani (after 1453), on which t the pointed windows of the principal story are flanked by fluted pilasters. An expressed Renaissance treatment is shown by palace Fava (1483) and palace Bevilacqua (begun 1481), on which the arched porticos are exceptionally wanting, and whose facade is entirely executed in cut stone, indeed in rustication with careful faceting of the different stones as diamond paneled ashlars. The windows are enclosed by richly decorated pilasters. The courts of the two palaces last mentioned are counted with the most beautiful columnar courts of the early Renaissance. According to the series of forms palace Fantuzzi (1517-1522) belongs here. (Fig. 251).

In Venice the Gothic held its place longest. The architects were also mostly sculptors, and in that world city so enriched by its commerce, they rejected unwillingly the picturesque openings in the walls and the splendid detail treatment of the Gothic expression of form. First in the last quarter of the

15 th story the Lombardi, an artistic family originating at C Carona on lake Lugano, introduced the Renaissance forms into Venice, certainly at first with a predominating decorative conception. Pietro Lombardo (died 1515) built after 1481 the beautiful palace Vendramini-Caleghi * (Fig. 252), and with his t two sons Antonio (died 1516) and Tullio (died 1532), from 1480-1489 the splendid little church S. Maria de'Miracoli, whose f facade is subdivided by orders of pilasters into two stories and terminates with a great semicircular arch.

** The building is dated with the year 1481 and the name of Pietro Lombardo. It was first completed about 1509. But on the city plan of the year 1509 it is still wanting. The plan and the commencement of the structure have in recent times been attributed to Moro Coducci.*

In the remaining cities of upper Italy are crossed Lombard, Venetian and also in part Tuscan influences. Verona obtained by the important Fra Giocondo * (1433-1519) its elegant palace del consiglio (after 1476), that just like the loggia del Consiglio in Padua (after 1493) has in its lower story an open portico with an extremely noble treatment. In Brescia was commenced in 1492 the impressive palace Comunale, whose ground s story contains an open portico, after the Lombard style and o-occupying more than half the width of the facade. The church S. Maria de'Miracoli there (after 1480) is a central building designed after Venetian models (Greek cross with four rooms in the angles), that on the exterior employs orders of pilasters with magnificent sunken arabesques and round arches as the upper terminations of the walls and candelabra columns in the interior, that rise from acanthus leaves and are charmingly d decorated by natural foliage. (Fig. 253).

** Besides Bramante, Fra Giocondo was perhaps the greatest a architect of his time in Italy. He first published again in 1511 the five books of Vitruvius.*

ROME AND LOWER ITALY in the 15 th century stand under the i influence of Tuscan art and that of upper Italy. Most of the popes were favorably disposed toward humanism and called foreign artists to their court. Among these we find the learned Alberti, even if rather as an impelling force than as an exec-

executing architect, his pupil and colleagues Bernardo Rossel ino and Giuliano da Sangallo. About the middle of the 15 th century arose in Rome the first architectural works of the ne style. The splendid period of the Roman early Renaissance fa lls in the reign of the Art-inspored Pope Sixtus V. (1471-148 His chief master was Giacomo da Pietrasanta (died 1495). To him is due or a great part of the Vatican (Papal palace) and the church of S. Agostino (1479-1483) in Rome; besides he led in the erection and the restoration of the numerous older str uctures in the capital. Rrobably also is to be referred to h him palace di Venezia (after 1451), which has a facade with v very little expression, but it presents something noteworthy in its beautiful court (Fig. 254), where for the porticos squ are piers with engaged half columns are employed instead of c columns, after the model of the Colosseum.

Under Innocent VIII (1484-1492) was completed the transitio to the Roman high Renaissance. From this time (after 1486), if not earlier, dates a principal creation of the Italian Ren aissance, palace Cancellaria in Rome. This noble structure w was formerly attributed to Bramante, but he first came to Rom in 1499, after the Cancellaria had been substantially complet ed for at least three years. Recent investigations are incli ned to ascribe the design to the great Alberti. The building actually appears as the highest development of the Florentine style proceeding from palace Rucellai, already entering into the high Renaissance. The facade shows in the ground story r rustication with round arched windows, in the two upper stori es being Corinthian pilasters with the appropriate cornices a and windows with horizontal caps, in dignified and reserved projections and members exhibiting a refined feeling for styl The construction with its open porticos in two stories is the last grand columnar court in Rome.

Into Naples the Renaissance found entrance about the middle of the 15 th century, indeed chiefly by the activity of maste rs from Florence and upper Italy. Giuliano da Majano (page 205) erected (after 1485) the noble gate Capuana, an arch wit pilasters, high frieze and attic between two stately towers; he was also engaged on Castello Nuovo.(Page 182). Pietro di

Martino from Milan executed between 1455 and 1457 the festal hall of this castle, in which the details already appear in t the purity of ancient Roman forms, and built the two story triumphal arch of king Alfonso I, greatly esteemed for its decorations in relief, near Castel Nuovo, completing the great show gate between 1461 and 1470. To the finest works of the Italian Renaissance belong the decorations of the crypt of the cathedral, executed by the Comacines, i.e. sculpturs from Como in upper Italy, which has the form of a three aisled subterranean church and is adorned by ornaments of extreme richness. Of t the buildings of Giuliano da Sangallo have been preserved in Naples only unimportant remains. The palaces, cloisters, additions and rebuildings of the second half of the 15 th century are chiefly under Florentine influences.

SICILY, aside from few exceptions referred to foreign masters, still remained in the entire 15 th century faithful to the Gothic style, and like lower Italy, even in the 16 th century, it no longer appeared with important buildings.

2. High Renaissance.

With the beginning of the Cinquecento commenced the best period of the Renaissance. (Page 173). Previously had the attention been devoted to the substantiality of the architectural appearance and to the orderly arranged organism of its members. Not by unnecessary and merely accidental ornamental work should its effect be influenced. The decorative accessories, so much favored in the Quattrocento, were therefore restricted i in their limits. The chief weight was placed on a correct subdivision of the architectural masses, on the harmonious proportions of the stories and the beautiful combined effects of the architectural forms. The columnar orders were more strictly treated in the antique sense, all members on columns and pilasters, on the cornices, windows and the like, were made in bolder relief, carefully profiled and more carefully drawn. The columns were restricted in their applicability and more and m more lost their function as free supports in contrast with the piers, richly subdivided by engaged columns and pilasters, which could be graduated at pleasure according to their functions. The wide structures of porticos and churches with their

domes and vaults, the general spaciousness appearing in even the dwellings of the citizens, now came to its highest develo ment in regard to beauty of internal creations and symmetrica proportions of architectural members. With an incomparable p power of treatment of form, the great masters dominated space and materials, construction and forms, just as they generally practised all formative arts in a masterful manner.

ROME AND MIDDLE ITALY. -- The high Renaissance finds the pr incipal scene of its evolution in Rome. The eternal city seems in architecture and the formative arts to show the dawn of a new age with the splendor of the former Roman imperial period. The role of leader was assumed by the great Bramante of Urbino. (Page 209). In the year 1499 he commenced his epoch=making activity in a little domed structure in the cloister o S. Pietro in Montorio, erected in the ground form of the temple of Vesta at Tivoli, with a Doric lower story crowned by a balustrade, and a smaller story with a dome, the whole a nobl work with a distinguished perspective effect. Then he took u the rebuilding and new constructions of the Vatican palace, w which had previously consisted of stuccoed structures. The court (cortile) id S. Damaso by him, and with the famous loggias painted by Raphael, afford particular interest (the uppermost of the four stories was by Raphael).

About 1505 Bramante received from Pope Julius II the greatest commission, that an architect had ever obtained, the new b building of the church of S. Peter at Rome instead of the ancient basilica of S. Peter. (Volume 1, page 159). The most famous architects of the high and late Renaissance took part in this. * Bramante's design shows an entirely symmetrical central plan with four cross arms terminating in semicircles afte the Lombard style, a mighty principal dome, four small domed rooms lying in the angles of the cross arms, four towers at t the angles, the four apses of the cross arms projecting from the rectangles being treated as entrance halls. Thereby Bramante designed an internal creation of perfected harmony and i incomparably grand effect, such as no building in antiquity c could exhibit in equal measure. Thenceforth the Greek cross passed for the most perfect form of the Christian House of Go

With the construction of the four piers of the dome, the vaulting, the arches and pendentives, and the partial execution of the superstructure from the southern arm of the cross and one of the side arms, Bramante fixed the internal proportions of the church of S. Peter. Its elevated beauty shows Bramante as a master, in whom the laws of art received their highest fulfilment in the same sense, as the case previously in the best ages of the antique. The marble facing of the Casa Santa in the cathedral of Loreto (1510) and the but half executed design for the palace Apostolico there, as well as the majestic harbor castle op Civita Vecchia are still today eloquent witnesses of his latest style, matured under the influences of the monuments of Rome. By them Bramante exercised a quite overpowering influence upon all his contemporaries and the evolution of architecture. Of the numerous churches dorectly to be referred to his school, S. Maria della Consolatione in Todi is t the most important. (1508-1524).

** The architectural history of the church of S. Peter (Fig. 255) shows the following masters to be the leading architects:- Bernardo Rosselini began a new building already under Nicholas V (1452-1454), which was carried further under Paul II, 1470-1472, but then stopped. In April, 1506, commenced the activity of Bramante. He designed a new plan in the ground form of the Greek cross with equal arms and with a dome, using for the construction a portion of the existing foundations, erecting the dome piers with their vaults as well as a portion of the southern cross arm. Under Bramante Peruzzi and Antonio da Sangallo the Younger were engaged from the beginning of work on the design (in the year 1505) onward. After Bramante's death (March 11, 1514), Fra Giocondo and Giuliano da Sangallo e assumed the leadership for a short time. Then (from Aug. 1, 1514) it passed to Raphael, who acted as the principal master until his death (1520) and carried on the building further in the sense of Bramante. From 1520 to 1524 all building activity ceased. Paul III energetically took it up again and entrusted the lead to Antonio da Sangallo (the Younger). He rejected the pedestals of the internal piers, raised the floor about 10.5 ft. and thus formed the Vatican grottos. His model is a*

still preserved in S. Peter. Shortly before his death (Aug. 3, 1546), he vaulted the southern and eastern arms of the cross. Under Antonio Baldassare, Peruzzi worked as assistant; a year preceding his death he was also appointed besides Antonio as a leading master of equal rank (after Jan. 1536). From Jan 1, 1547, the continuation of the building lay in the hands of the aged Michelangelo (then 72 years old). He held fast to t the general design of Bramante, but simplified it and intended to arrange before it a portico with a free colonnade. His principal attention was devoted to the dome, in vaulting which he went beyond Bramante's design. At his death (Feb. 18, 1564) only the drum was constructed. His successor was Vignola, to whom are due the small subordinate domes at the rear, planned by Vignola. After him (1573) the leadership came to Giacomo della Porta (until 1604). He carried into reality the grand project of Michelangelo for the dome in the years 1588-1590.

The imposing general impression of the central design, complete in itself, was only left to the building for a brief time The clergy contended, that in view of the traditions for many centuries in Western church architecture, and particularly because a portion of the ancient basilica of Constantine had not been built over, whose consecrated soil was thus devoted to s secular uses, the Greek cross should be extended to the Latin. Carlo Maderna, leader of the building after 1604, by the command of Pope Paul V, with Giovanni Fontana, was compelled to a add the existing nave (begun 1607) with the vestibule. The d dedication occurred in the year 1626. From 1629 onward Lorenzo Bernini labored on the structure. He led in the internal composition, decided to erect two bell towers at the sides of the facade, but fortunately had to drop this plan and to tear down the tower, commenced in 1638. (1647). But otherwise is due to him the credit for improving the general design by the erection of the elliptical double colonnades (1655-1669), by which Bernini partly removed Maderna's errors. (Volume 3).

Bramante's favorite pupil and successor in the building of the church of S. Peter was Raphael Santi (1483-1520), the famous painter. His earliest work is the little and finely proportioned church S. Eligio degli Orefici in Rome (begun 1509),

in which he depended entirely on his instructor. In the villa Farnesina (1509-1511), a loggia structure arranged in rectangular form with two projecting side wings, Raphael erected the classical model of a dignified summer house with the happiest grouping of the elongated rooms and simple, nobly restrained architecture. As a great gaster of the high Renaissance he proved himself in the design and partial erection of villa Madama (begun 1515). There he introduced two subsequently much employed innovations, a three aisled vestibule and an arcade, where the archivolt rests on two short pieces of the architrave resting on columns. (Fig. 271). This building acquired for Italian villas a typical importance like that of S. Peter for churches. Of the other buildings of Raphael are yet to be mentioned the magnificent chapel Chigi in the church of S. Maria del Popolo at Rome (1512) and in Florence palace Pandolphini (1516-1529), on which the window enclosures have pilasters in the lower, and half columns in the upper story; the alternation of segmental and pediment caps above them first occurs here. (This alternation is certainly proved already in drawings by Bramante).

Raphael's most important pupil was Giulio Romano (1492-1546), likewise a very important painter, employed first in Rome and later in Mantua. His chief work is palace del Te (after 1525), the famous pleasure house of Gonzaga before Mantua, an extended building of rectangular ground form arranged about a great court with a splendid loggia on the garden side, the interior decorated in the most splendid manner. At his church S. Benedetto located south of Mantua, he retained the basilican form of the ancient church and the pointed cross vaults in the middle aisle, continuing the vaulted side aisles as a choir aisle with a circle of chapels around the semicircular choir, before which he placed an octagonal domed space.

His contemporary, the classically designing Baldassare Peruzzi (1481-1537) was under the strong influence of Bramante, u under whose lead he was employed on the church of S. Peter (p (page 216). He was very active in architecture, partly in his native city of Siena, partly in Montepulciano, in Bologna (there also designs for the beginning of S. Petronio etc.) and in

Rome, where he created (after 1535) his chief work, palace Massimi alle Colonna with a beautiful portico and magnificent court. (Fig. 256). Also the cathedral of Carpi (after 1513), an imitation of S. Peter in Rome, is attributed to him. In the Uffizi of Florence are still preserved autographic drawings f from designs by the master, evidencing the grand architectural ideas, whose realization unfortunately was not permitted to hi

One of the chief pupils of Bramante was further Antonio da Sangallo (the Younger; 1483-1546), an architect highly esteemed in his time, even if less an epoch-making one. He was the leading architect of the church of S. Peter (page 216), employed in the erection of several Roman churches and chapels, creator of some palaces (Zarchioni Baldassari, Sachetti etc.). H His chief work is the vast palace Farnese in Rome (begun before 1514), the effect of whose facade is reduced (Fig. 257) by the closely set window axes and small windows, but is again i improved by the magnificent main cornice constructed by Michelangelo. Very beautiful is the triply arched vestibule (Fig. 258), spanned by a coffered tunnel vault, and the court, whose two lower stories are imitated from the theatre of Marcellus; the upper story is by Michelangelo (after 1517). In this court we have the most perfect example of a court with piers treated in purely antique forms.

Florence had in the time of the High Renaissance in comparison with Rome only the importance of a provincial city. Architectural activity was restricted within modest limits in comparison to those of the preceding period. But the masters preserved their traditions and created in several palaces impressive and finely designed works. At their head stands Baccio d'Agnolo (1462-1543) with palace Bartolini near S. Trinita, t the villa-like palace Giustini and the pleasing villa Castellani on the Bellesguardo. His two sons, Giuliano and Domenico, built palaces Ceramelli and Buturlin, the former recalling palace Farnese, the latter palace Guadigni. Giovanni Antonio Dosio (1533-1580) follows in his extremely noble palace Larderel (1580) the main lines of palace Bartolini, but belongs with h his other works to the late Renaissance.

UPPER ITALY in the high Renaissance became the scene of new

artistic advances, and indeed is it here the eastern portion, that is quite prominent in the cities of Padua, Verona and Venice.

In Padua was employed the Veronese Giovanni Maria Falconetto (1458-1534), by whom is the palace Giustinani (1524) etc., distinguished by cheerful grace with magnificent columnar architecture. The greatest building of the city is the church of S. Giustina (Fig. 231), planned in colossal dimensions, begun in 1521 after the plans and under the lead of the Venetian Alessandro leopardi (died 1522). The ground form is a Latin cross, covered (under the influence of S. Marco in Venice, supreme in this region) by domes over the crossing and the three short c cross arms, low domes over the nave and transverse tunnel vaults in the side aisles; the latter are enlarged by rows of chapels. On the like colossal scale is arranged the cathedral, built in 1551-1557 by Andrea da Valle and Agostino Righetto, planned like S. Giustina, but the nave was later interrupted by a short transverse aisle, the side aisle being treated as domed rooms side by side.

Verona affords vere great interest through the works of Michele Sanmicheli (1484-1559). This great master was first engaged in Rome as pupil of Bramante, but later returned to u upper Italy. There he continued in the last manner of Bramante, while he combined the great monumental tendency and the r refined feeling for beauty with an enjoyment of gay ornamental work in upper Italy. His earliest palace structure in Verona must be the noble palace Bevilacqua, whose facade in the ground story (as almost always with him) is subdivided by rustication in connection with projecting pilasters, in the upper story by fluted columns. (Fig. 259). On palace Canossa the entire ground story is treated as an open portico. The impressive palace Pompeii has frequently become a model for later buildings with its bold rustication (without pilasters) in the lower story and the great arched windows between columns in the upper story. Of the church buildings of Sanmicheli, the charming chapel Pellegrini near S. Bernardino at Verona (begun before 1554), frequently harmonizing in the design with the Tempietto in S. Pietro in montorio (page 215), the famous great

round church of Madonna di Campagna, also by him but only erected after his death. Sanmicheli attained particular fame as the architect of the fortifications of the republic of Venice, in whose service he had charge of the fortifications of the m mighty state as far as Cyprus. How well he understood also to give to the defiant fortresses a truly artistic effect may be seen on the magnificent city gates at Verona, among which the gate Nuova (1533-1540), gate S. Zeno (1541) and the gate Stuppa or Palio (Fig. 260), built 1542-1557, possess high artistic interest. Just on these appears with what refined feeling of the master, he understood how to employ the peculiar beauty of the Grecian-Doric style, indeed by the contact with Grecian ar The capital Venice further received from Sanmicheli the imposing fortifications with the castle on the Lido (1544), and the noble palace Grimani on the grand canal (about 1550), whose classical architecture of the columns and windows denotes the climax of the Venetian palace style. But the chief master of the Venetian high Renaissance is the Florentine Jacopo Tatti, called Sansovino (1486-1570), an artist highly gifted as sculptur and architect, brought up in Florence and Rome, likewise a pupil of Bramante, but when beside his contemporary Titian was opened to him an important artistic position (after 1527), showed himself not sufficiently strong to reduce to the correct measure the strong decorative tendencies reacting from the early Renaissance. His style of Ornamentation is visible in Fig. 261 from palace del Municipio in Brescia, on which he executed the beautiful frieze of cupids and the main cornice. (The window architecture was by Palladio). Among Sansovino's church buildings, S. Giorgio de'Greci (1550) is indeed the most important, a single aisled design, spanned by a tunnel vault, whose centre is occupied by a dome. As his earliest palace structure passes palace Corner della Grande (1532), on which the Roman school appears with its aim for monumental effect; it has rustication, in two upper stories being double columns with arches placed between them. Soon afterwards (1536) he b began the library of S. Marco, that famous long state building on the Piazetta, in which the antique columnar architecture u unites in one gush with the spirit of the Italian high Renais-

Renaissance in the gay Venetian conception. At the same time Sansovino built beside the Library the Zecca (former mint), to which he gave a somewhat more severe and earnest form in accordance with its purpose, and on the other side as a concealment of the tower of S. Marco the graceful Loggeta (1540), a marble portico as a magnificent show piece, that certainly is more p prominent by the sculpture than the architecture. Sansovino was also engaged in the erection of the beautiful church of S. Salvatore, completed in 1534, which was previously designed in 1506 by Giorgio Spavento under the plainly recognizable influence of S. Marco (volume 1, page 194); Tullio Lombardi was the principal master in charge in 1507.

The library of S. Marco strongly influenced the later masters. Vincenzo Scamozzi (1522-1616) repeated still at a time, when the architecture of the Renaissance had already passed the last stage of its development, its architectural motive in the structure of the Nuovo Procuratie (1584), whose effect he plainly lessened by the addition of a third story.

Of Sansovino's pupils,there appears as the most important Alessandro Vittoria (1525-1608), who erected the tasteful palace Balbi on the grand canal.

Another master of the highest rank was further produced by the Italian Renaissance in the phenomenal Michelangeln Buonarotti.(1475-1564). Born in Caprese in the upper valley of the Tiber, and trained in Florence in painting and sculpture, Michelangelo commenced his epoch-making artistic activity in the city on the Arno. Until the year 1534 he was chiefly in Florence, but was repeatedly and indeed for a longer time was engaged in Rome and chiefly in Bologna; then he removed to Rome and remained there until his death.

Michelangelo is the last great architect of the Italian high Renaissance, who still belongs to the entire best period, gathered its power in himself, and showed to art new paths, within which its entire future development was restricted. He accomplished the highest in all three arts. In his works belonging to sculpture and painting is manifest a supermanhood, in which every ordinary form is increased to the gigantic, if this was required by the effect desired by him. And likewise in his a architectural creations he appears like a titanic intellect,

which escapes from all bounds of antique and Christian tradition and matures the most strongly expressed individuality, such as architecture never exhibited before him and never after him. his eye was always directed toward grandeur, to the harmony and contrasts of parts in light and shade, of advancing and receding, of central and flanking architectural masses.Detail is for him an accessory; he only calculated on a sharply marked effect. His works were also accordingly fateful for the further evolution of architecture.

Michelangelo's activity as architect begins in the year 1516 with a design of a facade for S. Lorenzo in Florence, but whose construction was later again dropped, when he took up the works for the famous tomb of the Medici (after 1520) at this church. That is a square structure erected on a square plan and covered by a dome, with doubled pilasters and niches for subdividing the internal wall surfaces and rich sculptures, which are most harmonious with the architecture and are fused with it into an entirely unified and unsurpassed general effect. (Fig. 263). In the unfinished vestibule of the Library L Laurenziana (1523-1526) with the interesting entrance stairs (executed in 1558 by Vasari after Michelangelo's plan (Fig. 264) is expressed a complete breach of all restraints respected by former masters.

In ROME by Michelangelo is the splendid main cornice of the palace Farnese (page 219), and from his later time (after 1561 the much discussed gate Pia, that in the general design and t treatment of the details already bears all the traits of the later Barocco art. The noble architectural group of the Capitol likewise is referred to Michelangelo in the arrangement and also partly in the treatment (in 1546 was commenced the rebuilding of the palace of the Senators and the splendid double f flight of steps), but it was only carried out much later and with frequent variations from his design.

The master's great work in the domain of architecture lies in his labors on the new building of S. Peter's church (page 216). He undertook to carry on the construction , when he had already entered the 72 nd year of his life. His plan shows (while retaining the ideas of Bramante) the Greek cross with

four apses, a mighty principal dome,and four small subordinate domes over the corner rooms, with a front portico conceived at an enormous scale, that nevertheless, in case that it had been executed, would have subordinated itself harmoniously to the overpowering effect of the main dome. The previously constructed four piers of the nucleus of the structure were externally strengthened, the apses were moved farther outward, the complicated angle structures were removed and simplified into square corner rooms. The drum (Figs. 210, 265) is internally subdivided by pilasters and externally by doubled free columns, whose aspiring motive continues in the strongly projected and tense ribs of the dome, diminished upwards, and reappears in the connecting and crowning lantern. Thereby the dome entirely l loses the expression of weight. (On the construction of the d dome, see page 178). To Michelangelo himself is only due the drum, and of the architectural treatment, the external covering of the outer portions of the choir and of the main piers in the interior. The dome was constructed according to his plan and model by later masters. Its effect is unequaled and imposing. Bold and sublime, it soars in majestic security and repose above the eternal city as a representation of the highest power and dignity, and as the most perfect expression found by the spirit of the high Renaissance.

3. The Late Renaissance.

In the late Renaissance (page 173) there set in with the leading masters a reaction against the subjectivism of Michelangelo, creating with the caprice of genius, that at first manifested itself as a return to the endeavor for the most perfect imitation of the antique in regard to its proportions and details, already occurring with Bramante and strengthened by Raphael, Baldassare Peruzzi and Antonio da Sangallo. We see in t this a phenomenon of the intellectual life of that time of the counterreformation, which contested individual life in state and church, worked to strengthen the ancient teachings of the church, and emphasized the unconditional submission to its dogmas as the supreme basal law.

The character of the late Italian Renaissance was substantially fixed by two leading masters, Vignola and Palladio. They

were also learned theorists as well as distinguished practitioners. The unrestrained architectural treatment preferred by Michelangelo, as expressed on the gate Pia and the Library Laurenziana, they regarded as extravagancies, that offended "the good rule". So much the more strongly did they adhere to the canon derived from the antique, "they swore by antiquity alon Yet even with them the influence of Michelangelo remained undeniable in the seeking for grandeur, for powerful effect of the architectural masses and subdivision on a colossal scale. Entire systems of half and full columns were added to facades in place of the wall piers. To the relief of the facedes accented thereby corresponds a stronger emphasizing of the portals and windows. Yet more than previously the antique architetural forms came into use in the external as well as the internal architecture. But they frequently come to a more conventionally conceived mode of decoration, often applied like a pattern.

ROME AND MIDDLE ITALY. -- In Rome Giacomo Barozzi, called V Vignola from his native city (1507-1573) was the leading master. He was trained in Bologna as a painter, then at the orde of the Vitruvian Academy in Rome (founded 1542) undertook measurements of Roman works of the antique, went to France in 1537, and in 1550 again to Rome. There he belonged to that c circle of artists, which surrounded Michelangelo; yet he cannot be termed his pupil. In the year 1560 appeared his famous manual (Rules of the five architectural Orders), which exercised great influence in later times and even to this day.

As a practical architect we find Vignola employed on the grandly arranged villa of Papa Giulio (Pope Julius) before the gate del Popolo (1550-1555), whose portico with upper story e encloses the front court in a semicircle, and like the entire architecture of the exterior and interior makes a very dignified impression. (Fig. 266). His most important secular building is the imposing Farnese castle Caprarola near Viterbo ((1547-1559). It is surrounded by a wide moat, is pentagonal and fortified by bastions, but otherwise is a design complete with the architecture of a palace, which encloses a circular and extremely beautiful court with arcades, with a magnificen

main stairway and very conveniently arranged apartments. There Vignola has most happily combined the type of the fortified castle with that of palace architecture and evidently utilized suggestions obtained in France. In the year 1564 after the d death of Michelangelo he became the leading architect of the church of S. Peter (page 217). Very influential in church architecture became the principal church of the Jesuits, Il Gesu (15_8) in Rome. In it is clearly expressed the change in the architectural tendencies occurring in the age of the counterreformation. Men returned again to the old ritual basal form of Latin cross, but combined with it the effective form of the central building. Vignola then created in the Jesuit church a solution of the ground plan and treatment of the interior of amazing simplicity and artistic perfection. He gave to the c central design four short cross arms with the width of span of the dome, lengthened the front arm to become a middle aisle, considerably wider than before, allowed this to end at the choir side in a semicircular apse, and vaulted it with a tunnel vault corresponding to the dome. But instead of the side aisles he arranged chapels. (Fig. 267). Vignola also fixed the cross section and planned the details, still kept within the conceptions of the high Renaissance, but more simple and massive. But his pupil Giacomo della Porta went considerably farther, who completed the church after Vignola's death. In the magnificent treatment of the interior and the facade subsequently designed by him is expressed a strong tendency to the picturesque in the sense of the later Barocco art. The church Il Gesu became a classical model for the churches of the 17 th a and 18 th centuries and even influenced the church of S. Peter. The history of that church is also connected with the name of Giacomo della Porta, when he was called to erect the dome after Michelangelo's model, and thereby proved himself to be an architect of high constructive capacity, With the theorists of Rome is to be counted furteer Pirro Ligorio (died 1583), the builder of the splendid garden house villa Pia (about 1560), in the Vatican gardens, and the villa d'Este (after 1549) in Tivoli, famous for its unequaled park design. On the Pincio the Florentine Annibale Lippi (died 1581) built the palace villa

Medici for Cardinal Medici, now the French Academy. The faca
de toward the city is simple, but the garden facade is surpr
singly rich. (Fig. 268); it sows in the open arched portico a
and the rich ornamentation of the wall surfaces by antique re
liefs and stucco ornaments the character of the late Roman ca
sinos in their perfection. The building makes that dignified
and cheerful impresion, peculiar to the works of the school o
Raphael. We see here the charming and graceful, not striving
for grandeur.

In Florence Giorgio Vasari (1511-1574), a many-sided artist
and deserving writer on art, stands at the head of the archit
ects of the late Renaissance. With Vignola he designed after
the ideas of the architectura-loving Pope Julius II the previ
ously mentioned villa of Papa Giulio (page 226), and in Flore
nce the building of the Uffizi (1560) likewise commenced by h
him, on which he solved in a masterly manner the difficult pr
oblems there given. Two parallel wings with imposing portico
in the ground story flank a narrow street like a court and ar
connected by a transverse building, which leaves an open roun
arched passage toward the Arno. A greater activity in palace
architecture was developed by Bartolommeo Ammanati, also know
as a sculptor (1511-1592). Like Vasari, he consciously becam
a follower of Michelangelo. On the court facade of the palac
Pitti (1558-1570), certainly more stiff than beautiful, he em
ployed rusticated ashlars and half columns in all three order
(Fig. 269). As a more refined master he showed himself on th
noble bridge of S. Trinita over the Arno, which clothes the m
most suitable arched span in a very happily designed architec
ture.

UPPER ITALY in the late Renaissance became in several place
the scene of a very important artistic activity. In Bologna
Sebastiano Serlio (1475-1552) published in the year 1540 his
influential "Books of Architecture". Pellegrino Tibaldi (152
1592) there continued the school of Vignola in a number of sm
all and well arranged buildings. Likewise in Milan was this
architect engaged (under the name of Pellegrini) as the creat
or of the charming church of S. Fedele (1569), long regarded
as a classical model, and as the restorer of the cathedral fa
cade in the late Renaissance style, that was executed after

1616 after his designs, though not completely, -- and one may say unfortunately. -- The buttersses and upper parts were clothed in Gothic details, which appear like meaningless accessories in comparison with the animated forms of the doorways and windows. (Fig. 270). Tibaldi was a powerful and refined master in the creation of interiors and in architectural treatmant.

In the east part of upper Italy further arose in the 16 th century a chief master of the Renaissance, the great Andrea P Palladio of Vicenza (1508-1580). In him we become acquainted with the most inspired and strongly convinced venerator of the antique, which Italian architects of the 1. th century and of the entire Renaissance period have to show in their series. No master before him had studied with such devotion and thoroughness the architectural works of the ancients and so deeply penetrated into their nature, and none had understood how to embody the spirit of the later time organically in their treatment of forms with such sovereign domination, like him. In contrast to Vignola, who like the Roman architects generally of the high and late Renaissance preferred pier construction, Palladio cultivated columnar architecture. In the year 1570 appeared at Venice his "Four Books of Architecture", by which he has exerted a deep influence upon the evolution of architecture, effective until our own times Palladio was just as strong in the theory as he was free and independent in creation in p practice. He never ended with an ornamental effect, but allowed himself only to be guided by the arrangement and the feel ing of proportions. He was so full of artistic power, that he filled his works, even in small dimensions, with rich monumental and architectural meaning. In his facades prevails the c columnar system, particularly in the "colossal order" extended through two stories. Particular favor with him was enjoyed by the triple window with round arch over the middle window and architraves above the side windows (Fig. 271), a mode of treatment designated after him as the "motive of Palladio". This is certainly not entirely appropriate, since it is also found with Sansovino, with Raphael (page 218), with Bramante, and already on the palace of Diocletian at Spalato. (Volume 1). He restrained the ornament so far, that the clarity of the actual

structural elements could not be lessened thereby.

Palladio secured the first great architectural commission the so-called basilica in Vicenza (after 1549), an enclosing of the old city hall, dating from the second half of the 15 century, by an open two story portico (Fig. 271) extending entirely around it, a work op great and rich effect. This was followed by the beautiful palace Marcantonio Tiene (1556) treated with a colossal order of columns, then palace Chieragati (1566) with open portico in both stories, and palace Valmarana (1566), that exhibits a colossal order of Composite pilasters. To palace Barbarano (like those previously mentioned in Vicenza), he gave (1570) relatively rich details, indeed with reference to the effect in the vicinity (it stands in a narrow street), to palace Prefetizio (1571) a massively effective Composite order (Fig. 235), which however appears less happily employed on the comparatively small building, than on the other structures of the master. Of Palladio's numerous villa buildings, his villa Rotunda near Vicenza is the most famous (Fig. 236). It has a regular square plan with four hexastyle temple facades and wide flights of steps on each side. Entrances from these lead to a round central domed hall, around which are grouped the rooms and the upper and lower half stories. On the whole, this villa makes the impression, that it was designed less for comfortable than for festal occupancy, and as a central and view point of a beautiful landscape. The theatre Olimpico at Vicenza, commenced by Palladio but only completed after his death, appears as an interesting attempt in the restoration of the antique theatre. (Fig. 272 a). It contains in an extremely plain structure the audience room, orchestra, stage and architecturally treated stage wall in the arrangement of the Greco-Roman theatre of Asia Minor, but so far introduced an innovation in that through the gates and doors of the stage wall are presented views in streets and thereby perspective depths, which were foreign to the former architecture of theatres. (Fig. 272 b). Likewise Palladio attempted great works in the domain of church architecture. His principal church buildings are found in Venice. The first of these is the church of S. Giorgio maggiore (begun 1565), magnificently loc

located on the island of the same name and opposite the Piazetta, a three aisled basilaca with dome, transepts ending in semicircles, and a long monks' choir arranged as an extension of the main choir, from which it is separated by an open colonnade. The second and more important work, the most perfect church s structure of the master, is the church del Redentore.in the G Giudecca, begun 1577, similar in ground plan to that one just mentioned, but single aisled with side chapels and shorter monks' choir. The interior of this church produces an impression of high beauty and solemnity by the powerful treatment of the interior and the bold and severe subdivision by a colossal order of columns and their entablature. Equally grand and monumental did the master treat the facade as a temple front forming the facade of the middle aisle with a colossal order of h half columns and low pediment, against which are attached the fronts of the side aisles covered by half pediments, certainly without any organic connection.

Palladio was great and peculiar with all security in the conception and use of the antique architectural system in the architectural ideas, the creation of interiors and proportions. Already among his contemporaries his influence became perceptible. The stately so-called Library of the old seminary at V Vicenza (Fig. 273) was executed under the lead of Vincenzo Scamozzi (1552-1616), but if not designed by Palladio, was strongly influenced by him. Likewise in his most imposing building, palace Trissino-Barton in Vicenza, Scamozzi shows himself dependent on Palladio. More than by his buildings (also see page 222) has this master influenced the later world by his great work, "Architittura universale", particularly architecture in G Germany.

Into direct competition with the splendid city of the lagoons on the Adriatic Sea the republic and harbor city of Genoa entered after the first quarter of the 16 th century. By the extensive trade with the Levant, of which it obtained a great p part, it soon rose to great prosperity and wealth, which found fluent expression in architecture. The centre of gravity of Genoese architecture lies in palace architecture. This took from the first a peculiar and independent development, that in

the late Renaissance in a certain sense represents a more mature stage than the contemporary palace architecture in Venice and the rest of Italy. The lack of space and the building sites rising in terraces from the sea to the tops of the hills required in the narrow streets an abandonment of the monumental treatment of the facades. Men saw the centre of gravity in the interiors, the fulfilment of the requirements for living and in reference to dignified assemblies. To the facades was given an ornamentation better suited to an effect near by. T The portal led into an imposing vestibule, but little elevated above the street level, from which by wide and gently rising stairs one passed into the court. This was certainly limited to small dimensions, but it received at its rear a special decoration by a fountain erected on the middle axis. In this way were obtained picturesque views and effects of lighting with distinguished effects, scarcely equaled and never excelled elsewhere.

The evolution of Genoese architecture is connected with the works of its chief master, the talented Galeazzo Alessi (1512-1572). Coming from Perugia and employed for a considerable time in Rome, where he came in contact with Michelangelo and Vignola, he shared with the former the great tendency, to which details are but a means toward the purpose, but a feeling for proportions with the views of Vignola. One of his earliest w works is the beautiful palace Municipio in Milan, formerly palace Marini (begun 1558), in which the court is treated with an unusual richness in ornamental and sculptured decorative work. (Fig. 274). The great series of his Genoese palaces was opened by Alessi in the year 1559. The most important among them stand on the famous Strada Nuova, on which is arranged palace after palace. There are the still somewhat severe palace Cambiaso, treated in the Roman style and entirely covered by rustication, but already furnished with broken pediments over windows and doorways, beside it being palace Lercari, so picturesque by its open loggias in the upper story, and then palace Spinola, externally painted but equipped in the interior with imposing vestibule, stairway, upper porticos and court design. Of the numerous villa buildings of Alessi from the vicinity of

Genoa is to be particularly emphasized villa Pallavicini, located so beautifully on a high garden terrace with open arched porticos on the middle axis and a splendid balustrade crown; likewise villa Paradiso with its elegant loggia in the upper story extending the entire depth of the building and the treatment of the details already intended for a Barocco effect.

Likewise as church architect Alessi attained high fame. His church of S. Maria da Carignano (after 1552) at Genoa, a domed church arranged in the plan of a Greek cross after the church of S. Peter according to Michelangelo's plan, with four towers at the angles (but two of which were erected), belongs to the most important church buildings of the Renaissance. (Fig. 275).

Among the contemporaries of Alessi, Giovanni Battista Castello (died 1569) deserves mention, the creator of palace Imperiale (15_0), richly painted with figures and ornamental work ((partly in bronze colors), and palace Carega (now Cataldi) subdivided by pilasters, and furnished with a very beautiful vestibule and double stairways.

Of the other masters of the genoese late Renaissance, Rocco Lurago (died about 1590?) erected palace Doria-Tursi in the g grand style, certainly rather pompously than nobly treated, w whose rich facade subdivided by rusticated and fluted pilasters continues at both sides in one story open arched porticos, and Baccio del Bartolommeo Bianco (died about 1_56), who on t the facade of his falace University, begun 1_23, no longer restricts himself within the limits of the Renaissance, but created a portico and an arcaded court with coupled columns (Fig. 276), such as he could have scarcely thought more beautiful or suitable.

The architects of the second half of the 16 th century here mentioned still remained within the circle of forms of the Renaissance; they also continued severe in a certain sense, though not in the same degree as the other masters of this period. But in their works in the way and manner of the arrangement of the rooms, the regard to place impressive representations in the foreground, and their aim at the picturesque, perspective and lighting effects, and by the design of the details, they already exhibit a new spirit, that of the beginning Barocco style.

2.RENAISSANCE ARCHITECTURE IN SPAIN AND PORTUGAL.

The time of the Renaissance brought to the great peninsula in the extreme southwest of Europe a period of unusual prosperity and the climax of its political importance and power. In the year 1479 originated by the union of the two principal states of Castile and Arragon a great Spanish kingdom, which soon commenced a thorough political reorganization to strengthen i its internal power and for a development of that directed externally. The Spanish monarchs placed themselves in the service of the Catholic church, for whose extension and in the name of its protection, they employed the swurd. In the year 1492 the last remnant of Moorish sovereignty was conquered by the taking of Granada; in 1504 after an important participation of the Spanish army in the contests for Italy, the kingdom of Naples came under the Spanish monarchy, and in 1516 there fell to it by inheritance the crown of the imperial house of the Hapsburgs. Thus Spain became the centre of the world empire of the Hapsburgs, which then comprised Germany, the Netherlands, Burgundy, Milan, Sicily and the colonies in America and Asia. The enterprising spirit of the Spaniards, in whose country the affairs of foreign nations were settled and the fates of distant lands determined, rose without restraint. Already in 1492 had they discovered a new world; in 1519 a great Spanish realm was founded beyond the ocean, the kingdom of Mexico. The maritime commerce took a new and gradd development. Its most important starting and terminal points were the Spanish harbors and Spanish cities. From the new parts of the world flowed into these unknown wealth.

In this time of a magnificent national and material advance great problems fell to architecture. The cities of the South were wrung from Islam and required impressive cathedrals; the extension and deepening of the Christian faith was required by the church and demanded the founding of influential monasteries and their energetic support; the princes and the great of the country longed for new palaces, corresponding to their dignity and their wealth, and the cities in their public buildings scarcely remained below the increased requirements. Thus the conditions of the time existed from the end of the 15 th century for a welcoming reception of the Renaissance forms pe-

penetrating from Italy, and the external conditions of life w wire particularly favorable to their development. But by their forced growth were they compelled to accept materials from the different soil, saturated with the precipitate of the preceding art periods, which changed their character and produced a specific Spanish coloring.

The gifts of the Spanish nation substantially lay in the picturesque and ornamental by its strong mixture with German and oriental blood. The Mudejar style and the Florid style (estilo florido) (pages 141, 142) nere produced by it the richest fruits. Yet is also found the Italian art invention in the creation of a unified and completed architectural organism, at least in the conceptions relating to the not inconsiderable Romanesque part of the population. The principal representatives of these were the architects called or emigrating from I Italy, who besides other foreign architects from the Netherlands, France and Germany, were a determining influence on certain principal works of Spanish architecture, Under the combined and parallel effects of such unlike conditions and impelling forces, Spanish architecture attained an unusually diversified development.

The earliest influences of the Renaissance appear in the northern half of Spain and indeed in the "Plateresco" native there, that had its beginning about the year 1480. (Page 142). T The Plateresco in its beginning appears as a decorative style, chiefly developed on Gothic principles, permeated and ornamented by Moorish elements without definite rules in a luxuriant grouping beside and on each other, in which Renaissance ornaments are intermingled in the cavettos, on the friezes, as panels, ornaments and the like, loosely and gracefully like overlaid goldsmith's work. * The Renaissance forms are gradually increased by pilasters, candelabra columns and mouldings, but which are at first conceived as entirely decorative. The new forms gradually predominate in the structure and in the ornamental work. Their arabesques and scroll ornaments soon became nearly pure in drawing (on certain works, for example the portal at the hospital of Santa Cruz in Toledo already before 1514. (Fig. 277). Yet they even then appear as an overlaid decoration, scarcely growing out of the organism of the architectural

members, but in graceful, unrestrained and spirited use, with an inexhaustible abundance of ideas, thus enhancing the effect of the frequently dry and heavily treated architecture.

* *In not a few cases the Moorish style gives the keynote. Then Gothic and Renaissance forms appear as decorative accessories. On the whole the German architects called into the country, who remained there and were naturalized, have a rich p part in the development of the Plateresco. They had learned in the North to thoroughly know the native Gothic, were very skilful in the art of ornamentation, particularly as decorators, as such readily took up the new motives of the Mudijar and later those of the Italian Renaissance, thus producing an unlimited wealth of forms, that was poured in lavish abundance o over their architectural works, executed for the splendor-loving Spaniards.*

The Plateresco is an extremely interesting flower of Spanish civilization, a reflection of the nation fused from different races of people, the true style of the Spanish early Renaissaance. We can place its beginning at about 1500, if we perceive the first time of the penetration of Renaissance motives in the Spanish series of forms still predominating in the Mudejar style. Certainly this determination of the time in general o only applies to the secular and monastic architecture. The c churches retain in part until 1530 their purely Gothic character, and also even until toward the middle of the 16 th century are mostly in a predominating Gothic. (Page 140).

Besides the showy architectural style of the Plateresco, wh- in extravagant ornamentation also surpasses all, that contemporary art produced in other countries, the severe Renaissance found entrance at a relatively early date -- already in the twenties of the 1_ th century --, indeed as a direct imitation of the Italian high Renaissance. The Spaniards term this style the Greco-Roman style. But its monuments (Fig. 2,8) are s seen to not have grown on Spanish soil. They appear cold, lifeless and repellent in the land of the Mudijar and Plateresco, even with every care in regard to correct treatment of the details. The national stamp is even wanting to them. Likewise in the Plateresco about the middle of the 16 th century appears a moderation in the use of decorative expedients. The Ita-

Italian Renaissance forms are more freely adopted, the organism wins in clarity, yet without rejecting the Spanish requirement of show.

The period of the matured style, the Spanish high Renaissance begins with the reign of Philip II (1556-1598). After the theorist Francisco de Villalpanda (died 1561) * had designated the classical orders as a direct inspiration of God to the Jews at the beginning of the temple, a conception also propagated by the Academy of Art founded in Madrid by Philip II, the antique canon appeared as a kind of dogma. The artists studied the antique rules with great zeal. Thus arose works of that universal Palladian style, which frequently differed in facades and also often in the palace courts from the similar buildings in Vicenza and London, only by their location. The cheerful and unrestrained enjoyment of life passed in them into a stiff and tasteless classicism. But on the few structures designed for show, particularly on portals, cloisters and also in the interiors of the palaces, there remains a peculiar Spanish architecture with a preference for gay ornamental work, even in this time.

** Villalpanda was a fertile writer on art and at the same t time an eminent practitioner. He had measured and drawn the most famous Roman buildings, translated the 3 rd and 4 th Books of Serlio on Architecture, and he added to this not only a thorough training, but also a rare refinement of taste, particularly in the direction later termed Atticism.*

Among the successors of Philip II classicism continued. The unusual advance in the sciences and arts and the tense national feeling of the Spaniards also brought the architects themselves to their senses and to a freer expression of their peculiar mode of thought. Thus in church architecture, which so far at least in the North had remained entirely dependent on the Gothic cathedral system, the national ground plan again c came into general acceptance, as it had already developed in the middle and southern portions of the country in the 15 th century. (Page 141). Palace architecture never developed its own type. In the early Renaissance rectangular plans with straight facades are especially common, undivided lower stories are only animated by small and tasteless windows, richly dev-

developed upper stories opening like loggias, showy main cornices and ornamental roof crestings recalling metal works. At angles rise directly and without projecting from the facade, low tower-like structures with loggias and entablatures. These angle builings and a certain preference for long and unbroken lines of the facade also form a Spanish peculiarity on the buildings of the high Renaissance. But otherwise the latter in the plan and architecture stand under foreign influences, mostly Italian, French and Netherlandish. The period of the Spanish Renaissance closes about with the reign of Philip III. (Died 1621).

The most important monuments of the early Renaissance are f found in northern Spain with few exceptions. There the Plateresco developed in luxuriant abundance its splendid magnificence on portals and cloisters, as well as on the entire external and internal architecture. On the cloister of the cathedral of Santiago de Compostela (begun 1511) quite directly but in the most charming manner, Renaissance friezes, consoles and small columns are interpolated between mediaeval forms. Farther advanced in the cloister of the cathedral of Leon (1520-1550). The facade of the monastery of S. Marcos there, erected by Juan de Badajoz (after 1514) is counted with the noblest creations of the time. The lower story recalls by its pilaster architecture much in the Quattrocento art of upper Italy, the upper story with the candelabra columns and the luxuriant ornamental work over the windows and niches, the Netherlandish early Renaissance. A still richer example of this type is afforded by the beautiful portal to the hospital of Santa Cruz in Toledo (1504-1514) by the architect Enrique de Egas from Brussels. (Fig. 277). On the Alcazar in Toledo one of the chief masters of the Spanish early Renaissance, Alfonso Covarrubias, erected in 1537 the Plateresco northern facade. From him likewise comes the beautiful stairway design and the imposing columnar c court of the archbishop's palace at Alcala de Henares (1534), recalling Italian models. Numerous and imposing monuments of the Plateresco style are possessed by Salamanca. The portal of the university (1515-1530) is erected over the two entrances in three stories without windows, as a show piece entirely composed of figure reliefs, arms and arabesques between decor-

decorated half columns and pilasters. Allied treatment is shown by the somewhat later portal of S. Domingo there (1524-15.0). Like many portals of churches of this time, it lies in a wide and high arched niche, that affords protection to the fine sculptures against the weather. Palace Monterey in Salamanca is a richly developed palace design (Fig. 280), characteristic of the Spanish early Renaissance. The highest perfection was reached by the decorative style in the unfortunately never completed city hall (Casa de Ayuntiamento) at Seville. (154.-15o4). It is nearly the sole work in the South but has a richness and beauty inferior to no contemporary work, and perhaps never again attained. The chief magnificence is shown by the eastern side. (Fig. 281). The lower story here has Composite pilasters, in whose panels rise arabesques in the style of the Italian Quattrocento, the upper story being subdivided, partly by fluted Corinthian columns adorned by garlands of fruits, partly by candelabra columns, the entire facade being supplied with structural members and the wall surfaces with most lavish sculptures and ornamental work.

The Greco-Roman style is shown as the earliest monument by the palace of Charles V (Fig. 2/8) erected at the Alhambra. This has a rectangular ground plan with a colossal circular c columnar court, in which the entablature rests directly on the columns. As on the facades, the Doric order is employed on t the lower story and the Ionic on the upper one. As architect is mentioned Machuca, who had charge of the building from 1526 to 1533. After the court and three facades were constructed, the structure remained unfinished. The palace exhibits a clear arrangement, a complete domination of the architectural masses, and sharp, refined and graceful details,,that approach near to the architecture of Sanmicheli. (Page 220). It appears in its universal style in the midst of the surrounding buildings and the entire landscape as an expressive symbol of the position in the world assumed by Charles V.

The first church building in expressed Renaissance forms is the cathedral of Granada (page 14.). Enrique de Egas had commenced the structure on the basis of Gothic lines in the plan as a five aisled plan with six continuous bays and the extension of the outer side aisles around the polygonal choir, but

only the foundations were completed. From 1528 Diego de Siloe (died 1563) led on the building; in 15 1 it was dedicated. The architecture remains within the limits of a very severely conceived Renaissance, still under Gothic influences; the vertical lines are strongly accented, the piers are energetically subdivided, not in the sense of the overloading of the Barocco, but in that of a translation of the originally designed Gothic piers into Renaissance forms (Fig. 282). The nucleus of the choir is formed by a central building with ten sides occupying the width of the middle aisle. The vaulting follows with rich, but purely decoratively treated star vaults. Diego de Siloe is also the builder of the cathedral in Malaga (after 1528; F Fig. 283), which in plan and treatment frequently recalls that in Granada, but on its visible side differs from that advantageously by the well weighed subdivision of the structure into two nobly treated columnar orders between the front towers. According to the building period the cathedral of Jaen also s still belongs to the early Renaissance, begun in 1532 after t plans of Pedro de Valdevira. On it again appears the true national church ground plan (Fig. 2.9) as a rectangle (223.1 × 144.4 ft. in the clear) with three continuous longitudinal aisles, a transverse aisle, chapels along the outer side walls and choir end, and two flanking towers in the facade. The architecture of the interior and exterior already bears the character of the style of the succeeding period.

The high Renaissance had in Philip II a zealous and energetic patron. The king took part personally in the preparation of building plans, and also interfered directly in the superintendence. Already in the first years of his reign, he commenced at some 31.0 miles northwest of Madrid and at the foot of the Guadarrama mountains his principal creation of the Escurial (Fig. 284). In it he established in 15 3-1581 a colossal structure, that was to combine the church (S. Lorenzo), monastery, royal palace, library , Mausoleum and picture gallery. The ground form is a rectangle with sides of 524.9 and 656.2 ft., enclosed by four wings of the building, that on the entrance side showing a richly subdivided frontispiece. The two side wings continue in a single line for each, but the rear

one is broken by the choir of the church. The angles are accented by low tower-like structures. The church lies on the m main axis and is a central building over a Greek cross with a vestibule between two front towers. By parallel and transverse divisions is produced a great number (16 in all) of rectangular internal courts, all surrounded by arcades on piers of columns. As architects were employed Juan Bautista de Toledo (died 1567), and after him his great pupil, Juan de Herrera. (1530-1597). Both had received their training in Italy (Naples and Rome), whereby is explained the architectural forms entirely in the Italian character. The church of the Escurial (Fig. 285) is Herrera's own work. Likewise Vignola, Alessi and Tibaldi must have furnished designs. The Escurial was caled in its time the eigth wonder of the world. It is perhaps the largest architectural undertaking ever conceived and executed by a single man, indicating the royal nature and personality of Philip II, whose spirit of rigid etiquette, sullen n nature , gloomy and petrified religiosity, are expressed by t the work, but otherwise is without great importance in the history of art. Soon after the completion of the Escurial, the king commenced another great structure in the north of Spain, the cathedral at Valladolid. (After 1585). Juan de Herrera d designed for it a grandly conceived plan in the basal form of a rectangle 452.7 × 229.7 ft. in the clear, with dome and four angle towers, but he was compelled by lack of means to prematurely terminate the construction, after scarcely one half was erected. Herrera was the most important Spanish architect of the 16 th century and the supreme architectural official of the country. His exchange (bourse) at Seville (1584-1598), a rectangular structure, its exterior simply subdivided by wall strips and Tuscan pilasters, enclosing an impressive two story court with arcades on piers, treated entirely in the Palladian sense, and which might as well have stood in Vicenza. For the castle in Aranjuez in the midst of an incomparable landscape, already commenced by Toledo (1561), but stopped on account of the erection of the Escurial, Herrera designed in 1571 new plans at the command of the king, whose execution was then begun. But the master did not live until the completion.

The severe academic tendency introduced by Juan de Herrera influenced nearly all buildings at the end of the 16 th century and even prevailed at the beginning of the 17 th century.

IN PORTUGAL the early Renaissance is characterized by the "Manuelino style" (estilo Manuelino; page 146), whose chief work is formed by the monastery of Batalha near Lisbon (page 148) founded in the year 1500 by Manuel the Great (1495-1521). The magnificent portion of this singular architectural work is the cloister represented in Fig. 286, by Joao de Castilho and built before 1550, perhaps the most beautiful, in any case the most magnificent of all monastery cloisters. Until after the middle of the 16 th century the Portuguese adhered to the art style of their best period. Indeed about from 1533 onward became perceptible . stronger infusion of Renaissance with the loggia of the Capellas icparfeitas at Batalha. (Page 147). B But it did not attain an entirely national development and maturity, since the country had fallen deeply into decadence under the successors of the great king. About 1570, Filippe Terzi of upper Italy came to Portugal, indeed on invitation of t the Jesuits. The king Sebastian appointed him in 1572 architect of the royal palaces; later he also became architect of t the fortifications. Terzi erected numerous buildings in Lisbon in very pure forms of upper Italy, among them the church of S. Vicente de Fora (after 1590), whose facade exhibits on a high lower story three intervals of a great Doric order, above being a Corinthian order, and flanked by two low towers.(Fig. 287). A series of other structures were partially or entirely destroyed in the earthquake of 1755. Likewise in Coimbra, Porto and Thomar, Terzi was engaged on great buildings. He was t the architect of the developed Portuguese Renaissance, who exerted a controlling influence upon all masters employed in the country in that period.

3. RENAISSANCE ARCHITECTURE IN FRANCE.

I. Historical Evolution and Style.

More closely than in any other country outside Italy does t the art succeeding the middle ages cling to that of the Italian Renaissance. Indeed likewise here, as in all northern countries, had the soil proved itself particularly adapted to the Gothic. But otherwise in France the basal conditions for the acceptance of Renaissance forms were substantially less favorable, than elsewhere. The French are an artistically gifted mixed Romanesque people, that was derived from at least three great races, the Gauls, Romans and Franks, and stand infinitely nearer the Italians in derivation and character, than the other nations of the West. In the formerly Roman provinces of southern France the antique had exercised a direct and deep influence upon the entire civilized life and had left behind numerous monuments, which must have affected the artistic designs of the Romanesque population there preponderating in a manner similar to that on the racially allied Italians beyond the frontier. Likewise in the climatic, regional and general conditions of life lay many analogies, whilh produced necessarily the same expressions in the art works. And even if the assumptions are fautly, the evolution of the French Renaissance would have been completed internally from these bases, in entire independence and without foreign influences. It required far more deep and continued impulses, before the French Renaissance reached its development and maturity. These impulses started at the end of the 15 th century from an event of political history, by which the French monarch and the great men of the country learned to know the architectural works of the Italian cities, by the campaign of the army undertaken by Charles VIII (1483-1498) to Naples in the year 1495, in order to protect h his right of inheritance. The splendid Italian churches and palaces made a deep impression on the king and his knights. He conceived the plan of erecting similar buildings in his own k country, and further called to France in the same year a series of Italian artists, among whom were Fra Giocondo of Verona (page 212) and Domenico da Gortona. His successor Louis XII (died 1515) continued his endeavors, and Francis I, a powerful

monarch and a zealous promoter of art and science, who had also among others secured the theorist Serlio from Bologna ((page 229) for his service, systematically carried on his buildings the Italian Renaissance with all its consequences. Thus it was the court and the second line of nobility dependent thereon, who appeared as the supporters and spreaders of the Renaissance in France. Thereby it received there this predominating character of the court. Its entire evolution was determined by the reigns of the different kings named. Therefore the French also designate the different periods after the names of their monarchs. Since the formative arts first of all have to serve for dignified representations and personifications of the royal powers, architecture takes the leading part. Painting and sculpture appear in a condition of dependence upon it.

Until the end of the reign of Francis I (1545) continued the period of transition from the form world of the middle ages to the matured new style. Therefore we have placed the French e early Renaissance from about 1500 till 1545. The chateaus of this time permit the recognition of their development from the mediaeval castle. They still form irregular architectural designs, that are surrounded by a wall and moat, contain one or more courts, and the main buildings are so arranged, that they are grouped around a great court, the court of honor, with three or four wings. Outside this architectural group serving for the use of the court, is found the subordinate court (basse cour) intended for the housekeeping. At the various angles of the chateau stand towers, which are still mostly round, yet have already lost their purpose of defense and serve as living rooms (Fig. 288), at the corners of the main court being smaller stairway towers. The private palaces located in the cities (termed "hotels" in France) generally show a simplification of the chateau design at a smaller scale, and with the omission of the arrangements intended for defense. They were placed away from the streets if possible, separated from them by a court with a high enclosing wall. A rich facade was exhibited by the city halls as a rule. With the conservative sense of the cities, these were still exclusively Gothic until in the second quarter of the 16 th century, but then occurred Renais-

Renaissance forms in luxuriant magnificence.

The simple houses of the citizens are mostly half timber structures with narrow house entrance and wider arched opening for the shop or the workshop in the ground story, and coupled windows in the upper story serving for living rooms. The church architecture of the early Renaissance retains the Gothic design in ground plan and structure even with the buttress system, translating the detail forms on buttresses, flying buttresses, finials and parapets directly into Renaissance forms. (Figs. 189, 299). The windows frequently retain Gothic subdivisions, even in chapels of chateaus. In secular architecture (Fig. 290) in place of pointed arches occur round arches, depressed arches, and particularly common are straight arches (h (horizontal lintel with rounded corners). The windows are made large and mostly receive a stone cross for a rectangular light area. The battlements are replaced by perforated galleries. An expressed preference for high and steep roofs, for numerous and splendidly treated dormers (roof windows) and for colossal and harmoniously treated mantles appears ewerywhere as a natural peculiarity, that has in great part been retained to the present time. The evolution of the style of the French Renaissance is extremely interesting, but it presents no unified representation. One could select an entire series of schools, that exhibit a special character of the style corresponding to the diversity of the provinces and their population. But in general may be recognized two chief tendencies, the Italian-Antique and the Gallo-Frankish. The former directly results from the influence of the southern French-Antique and of Italian art; the latter is rooted more in the native Gothic. Its sources are also in a far less degree than those in the c classical architectural works of the South and of Italy, for whose organism were at first little accessible the art forms of the Gallo-Frankish portion of the population, still controlled by mediaeval opinions. It was derived much more from intersias cade in Italy, book illustrations and the like, in Italian original drawings, copper engravings and bronze tablets, and in these was it that the new mode of decoration, in particular the animated ornament as it appeared in the Quattrocento

art of upper Italy, that held the French, inclined toward too rich and animated decoration. Thus arose an uncommonly picturesque transition style with miked Gothic and antique forms, that was gradually purified with the increasing understanding of the nature of classical forms, finally turning into the paths of Italian-Antique art, yet in harmony with the national keynote. A particular pleasure in luxuriant sculptured and ornamental decoration then still belonged to it. The ornament may de deduced in nearly all details from that of the Italian Renaissance, especially from that of upper Italy, but by the art taste of the French constantly directed toward the ornamental and graceful, it receives by the abundant use of figure medallions, coats of arms, symbols and monograms an original development with a very fanciful and refined execution. (Figs. 288, 289). The ornament of the early Renaissance only remains in use until about 1530; thenceforth prevails, at least in the internal decoration, the grotesque (page 190) under the influence of the school of Fontainebleau, which was spread over all France by native ornamental engravers.

The French high Renaissance (about 1545-1580) commenced with about the accession of Henry II (1547-1559). Already under h his predecessor had Franme taken a mighty advance. The capital Paris became the centre of intellectual and artistic life. It also assumed the role of leader in art and maintained this in the entire succeeding period. The provinces remained backward in the development, particularly those of northern France. A series of important artists, trained in Italy, sought to bring into severer use the classical laws of form learned there, and to purify the architecture of their native land, but still retain certain national tendencies, which gives to French art its peculiar expression. In the style became perceptible an endeavor for greater regularity, definite architectural lines, symmetrical distribution of the structural masses and an emphasizing of the chief points. On the noble architectural works the angle towers were transformed into pavilions of rectangular design, and the chief axes were accented by projecting and raised central buildings; the stairways were removed into the interior and received straight flights with landings. In the

structure (Figs. 292, 302) remained the steep roofs, the dormers and also frequently the great rectangular windows woth stone crosses. The dormers were usually arranged directly beside each other, so that they form a continuous attic story. Likewise the upper windows not seldom interrupt the main cornice. Over these generally rise triangular or round-arched caps, frequently arranged alternately beside each other, as the upper termination of the facade. Herein as well as in the arrangement of the corner pavilions, the steep roofs with dormers and monumentally treated chimney caps lies the individuality of t the French high Renaissance. In the facade system was skilfully utilized the combination of the two stories in one order. The forms of details permit the individualities of the different artists to be plainly recognized. A new phenomenon is the "French order", on which richly ornamented bands covered by r rustication are inserted between the separate drums of the shafts of columns. (Fig. 291). In general becomes apparent a greater enjoyment of decorative richness; particularly in relief ornament, in the common use of hermes and caryatids, than in contemporary Italian architecture, and likewise a certain tendency to refinement of all details. Yet is also expressed in this the prevalence of a theoretical direction, such as occurred in the literary works of different masters.

The chateaus lost all remembrance of the former fortifications, the wall, defensive towers and the like. They received a regular plan around one or more courts, if they did not have to take into account already existing structures. For smaller works the court mostly approximates the square ground form. In other private architecture likewise appears an endeavor for regularity and purity of the forms of the style. Church architecture in this period remains very backward in the acceptance of the Renaissance. Only on the portals and in the treatment of the facade does it secure a greater influence. But in the interiors of churches definite Renaissance forms first found entrance with the beginning of the 17 th century.

In the last decades of the 16 th century French art was no longer free to develop itself under the unfavorable times, the frequent changes on the throne, and the violent religious and social wars. Under Henry IV (1589-1610) indeed again appeared

better times. But the king saw more important problems in measures for increase in the welfare of the people, in the construction of streets and canals, the correction of entire quarters of the city, and in the provision of open squares, than in the erection of chateaus. A certain tasteless but intelligible conception then obtained supremacy in architectural creations. Men preferred ashlar work for itself, carried out rustication on all the stories (Fig. 293), but resorted to brickwork to a greater extent, then employing cut stone only for t the enclosures of the doorways and windows, the angles and cornices. The Ionic and Corinthian orders lost their preeminence to the Doric. Particular attention was devoted to rustication; it was designed with ornamental decorations and with sunken lines interlaced like worms. * On the whole men resorted to the effect of the masses, which also appears in the most s swelled forms of ornamental work. The contemporary Italian art won a greater influence; the stone cross and mullion disappeared. The internal walls and ceilings received in increasing measure moulded enclosures in relief, within which were placed paintings. But in the designs of buildings, the angle pavilions, steep roofs and high chimney caps were still retained the national tendencies.

* *Rustication always served to emphasize the strength and s stability on the horizontal corners of substructures, on vertical supporting members like the angles of walls and their openings, and even on pilasters and orders of columns, frequently also for purely ornamental purposes, for the animation of facades, as a transition from the horizontal to the vertical, and as a contrast to the orders and their vertical tendency. It is particularly found on great chateaus, palaces, city gates and the like, but less on private houses. It is but exceptionally found on churches.*

For this period of the French late Renaissance can scarcely be given an appropriate time limit. The changes are in time and style too variable and indefinite, and if important writers regard the entire age of Louis XIV and XV as belonging to the Renaissance, there may indeed be mentioned for them as many reasons, as for the acceptance of another, that in general

one may not speak of a French late Renaissance, since the high Renaissance passed directly into the Barocco. But it cannot be denied, that after the deaths of the great masters of the high Renaissance, and particularly with the reign of Henry IV, a changed conception appeared in architecture, which in comparison with the high Renaissance shows a decadence in development, and that on the other hand with the time in which the great statesman Richelieu took the rudder of the state (1624), a and introduced his energetic measures for overthrowing the ancient feudal nobility, and for the erection, strengthening and glorification of an unlimited royal power, a new spirit, that of the Barocco, penetrated into architecture, particularly into internal architecture. Therefore we date the late Renaissance of France from about 1580 to about 1625.

In the course of the French architecture of the late Renaissance appeared two tendencies, that were already prepared in the high Renaissance, even with little definiteness. One of them represents a severe conception of architectural forms in the spirit of the antique and of the Italian theorists Vignola and Palladio; the other saw its models in the works of Michelangelo, of Alessi and of Ammanati and created its buildings in a free manner, frequently influenced by Flemish art. We have herein a reflection of the two main currents, that dominated the religious and political conditions of France at that time. In fact the severe classicism was chiefly defended and spread by the Huguenots. Both currents then proceed in France beside each other, sometimes combine and frequently refine and free the art designs on both sides. The unity and similarity of t the artistic expression, that formed a distinctive mark of the later French art, was first attained in the time of Louis XIV, but it then appears as a piquant mixture of a severe academic classicism and a free and unrestrained Barocco.

2. The Most Important Monuments.

After the reign of Louis XII the chateau architecture stands in the foreground of artistic creation. In it was developed an extraordinarily animated activity. Today more than 30 chateaus may be counted, dating from the 16 th century and in great part famous, that were not infrequently laid out on such c

a colossal scale, that they never came to completion. Many f fell a sacrifice to the storms of the Revolutions. With the adundance of monuments in the region of the Loire, especially preferred at that time, in Normandy and the south, we can only here refer to the most important works.

The early Renaissance took its start from the chateau at Amboise. There had been settled since 1495 an Italian colony of artists. From their cooperation with native masters proceeded the first French Renaissance on the Loire and at Gaillon. Among the Italian masters Fra Giocondo (called in 1505 by Pope Julius II to participate in the competition for S. Peter's), and after him Domenico Cortona (the latter participating on t the chateaus at Blois, Chambord, Bury etc.) exercised great i influence on French architecture. The chateau at Amboise is an imposing complex of buildings, enthroned on a high terrace above the Loire and guarded by massive round towers, on which only certain portions of the structure date from the end of the 15 th and the beginning of the 16 centuries. On the eastern wing of the chateau at Blois erected by Louis XII, whose history extends back into the time of the Renaissance, the facade exhibits very remarkable Renaissance forms. Richer decoration in the spirit of the Renaissance is borne on the northern wing, built by Francis I at the beginning of his reign, w whose court facade with the magnificent winding stairway (Fig. 294) indeed forms the most beautiful work of the French early Renaissance. About 152_ the same prince commenced the grand chateau of Chambord some miles north of Blois (Fig. 295) as a regular plan with a principal building on a rectangular ground area, four mighty round towers at the angles and a detached s stairway tower erected over the middle of the court (?) (with the famous double winding stairway, on which those ascending and descending did not meet), whose termination by a lantern rises above the unusually animated outline of the roof. As a architect of this chateau is named Pierre Nepveu. At the same time Francis I erected near Paris the hunting chateau of Madrid, a smaller rural residence, on an elongated rectangular ground plan without a court. The formerly proud but now completely demolished showy building had in its somewhat recessed

middle part, in the two lower stories being open round-arched arcades with terra cottas (by Girolamo della Robbia from Florence) in the spandrels of the arches, above these being also two enclosed stories with developed and noble Renaissance forms. The brick structure of the chateau of S. Germain-en-Laye near Paris, rebuilt in four storiesabout 1530 by Francis I on earlier and entirely irregularly arranged foundations, is severe and simply treated with a strong accenting of verticals by buttresses, the whole with a massive impression, almost like a fortress. As the darling creation of the architecture-loving king is to be regarded the chateau of Fontainebleau. In it was established a palace of immense extent and truly royal magnificence with an irregular grouping by retaining older parts. But in reality its artistic importance is exceeded by its historical. The chateau was frequently rebuilt and thereby lessened its unified effect. The exterior is comparatively simple with a thorough approximation to the Italian arcaded construction on piers with projecting pilasters and columns; but the interior was treated with extraordinary richness. The most i important rooms from the early Renaissance are the ballroom a and the gallery of Francis I. The ballroom (Fig. 296) is manifestly influenced by the style developed in Italy and cultivated by Giulio Romano (page 218), wooden paneling, stucco, reliefs and painting being employed in the richest measure. It is indeed the most nobly treated and distinguished interior of the time of Francis I. The gallery is 190.3 ft. long, comparatively narrow and low, and in the prominence of luxuriant panels, of cartouches, of figure and ornamental decorations, already permits the decadence of the style to become visible.

With these royal chateaus the country seats of the nobility do not keep equal pace in regard to the evolution of the Renaissance. In them the mediaeval forms are influential longer than in the former. First during the reign of Francis I on t the chateaus of the nobles the basal traits of the feudal castle were gradually supplanted by attention paid to convenience, a comfortable and cheerful equipment. A very important early work is that of Cardinal George d'Amboise, the art-versed statesman of Louis XII, a zealous patron of the Renaissance, who built after 1502 near Rouen the unfortunately destroyed chat-

chateau of Gaillon, from which remains a drawing by Du Cerceau and the portal of the inner court, now set up in the court of the ecole des Beaux Arts in Paris. Guillaume Senault, a French master designed the plan for the main building and labored on its execution from 1502 to 1507. The new building adjoined the irregular and already existing castle; but the principal court was already arranged in octagonal form and surrounded on three sides by pier arcades. The architecture had great richness in the gay ornamental work of the early Renaissance. Entirely preserved in its original condition is the chateau of Chenonceaux near Blois, erected 1515-1555 on the river Loire and partly on a bridge across it.(Fig. 298). The chateau proper has a square ground plan without a court. The angles have slender round towers, and the chapel and library adjoin the nucleus of the structure. Here mediaeval and Renaissance forms were employed directly beside each other. The windows have l late Gothic enclosures, heavy hermes before the middle jambs and Renaissance pilasters at both sides. Grand was likewise the chateau of Bury, also near Blois and built after 1515, a regular plan with square court of honor and rectangular garden behind the main building, evidence of whose splendor is given today only by still massive remains. Of the water chateau of Chantilly near Senlis, the main building from the time of Francis I is grouped irregularly around a triangular court, but l later and about the middle of the 16 th century, it was connected by a bridge with an outer court and garden surrounded by service buildings, and on the other side by a second bridge w with the great agricultural court and other plans of gardens. The architecture of the portions of the building erected in t the time of Francis I with all their richness already permit the recogintion of a plain endeavor to simplify the forms in the sense of a severe observance of the classical laws of form. Extremely numerous and important monuments are contained in Touraine.(The river region of the Loire in regard to its development in the history of art may be compared with that of T Tascany in Italy, and likewise Normandy by the lavish decorative treatment of the architectural works with upper Italy). T The chateau of Chateaudun near Orleans, restored from 1502 to

1532 without ever being completed, exhibits in the facades only a few Renaissance forms, but it has a winding stairway included in the mass of the building, which scarcely finds its equal in grandeur and as a structural work. The chateau of Lude (Fig. 288) was begun in 145ʻ and rebuilt under Francis I, completed in 1535, by clear simplicity in the ground plan and extraordinary refinement in the treatment of the details, affords in its entire appearance a harmonious representation of the self-conscious and defiant supremacy of the higher French nobility, appearing in graceful and dignified clothing. Likewise the remaining numerous chateaus of the French early Renaissance have the mixed style resulting from national and Italian architectural principles, which unfolds its picturesque charm on the always preferred court facades.

Among church buildings (page 248) the choir of S. Pierre in Caen, built 1518-1545 by mector Sohier, presents one of the m most interesting examples. It is still arranged on the Gothic cathedral system as a polygon with choir aisle and circle of chapels, constructed with buttresses, flying buttresses and f finials and the like, but otherwise entirely clothed in Renaissance forms and ornamental work. (Fig. 297). Also S. Eustache in Paris, begun in 1532 by Pierre Lemercier, has an entirely Gothic design, directly translated into Renaissance forms (Fig. 299), but on the exterior Doric and Corinthian pilasters with triglyph frieze (the magnificent double colonnade of the facade is from a later time.) Fully expressed Renaissance forms were received by the facade of the Gothic church of S. Michael at Dijon with three great round-arched portals and two towers, subdivided by four orders of pilasters between bold buttresses and crowned by octagonal domes.

Among the city halls are to be emphasized those of Paris, Orleans and Beaugency. They indeed still retain the former internal plan (page 154), but with a stronger accenting of the v vestibule and stairway. Instead of the belfry occurs a small clock or bell turret . The facades are enclosed and furnished with pilasters and their cornices and with the new ornamental work. Of the prominent city houses the Hotel Ecoville (about 1530) in the picturesque old city of Caen presents a model ex-

example with charming areaded court, around which are grouped a great hall and the living apartments, and with a facade of extraordinarily beautiful proportions. Interesting in style is the house of Francis I at Paris, erected in 1527 in the village of Moret near Fontainebleau, later transported to Paris and set up in the Champs Elysees. (Fig. 300). It is an architectural ornamental piece of unusual magnificence. Numerous Renaissance houses, both stone and half timber structures, are still found in Orleans, Bourges, Rouen, Angers, Caen, Viviers etc.

At the transition from the early to the high Renaissance, we have to consider an architect, who has transmitted to us a knowledge of French chateaus by his architectural drawings, Jacques Androuet de Cerceau (1510-about 1585). He chiefly became known by his rich activity in art literature, was a refined a and educated artist, but scarcely appeared practically; at least no important architectural work can be attributed to him with certainty. In the year 1550 he designed an ideal plan for a chateau, that still entirely exhibits the loose connection of the separate structures of mediaeval castles in plan, but these are entirely clothed in Renaissance forms.

The high Renaissance (page 249) is characterized by the chief works of two great masters of French architecture, which d definitely influenced its development. The first of these works is the Louvre. Shortly before his death, Francis I came to the decision to erect an imposing new structure on the site of the old mediaeval castle, that he had torn down. He entrusted this to the refined Pierre Lescot (1510-1578), born in Paris and educated by the study of the antique architectural monuments of Rome. He planned a design with four winds having m middle and end pavilions, grouped around a square court. (Fig. 301). Of this the master, who had charge of the building from 1546 to 1578, erected the southwest angle (Fig. 30). As the facade system he employed on the inner and richer court side (the external facade toward the Seine exhibits great simplicity) two Corinthian orders, the lower one with an arcade, between which lie the windows and doorways. Above the latter he arranged the round windows, which later attained to such great favor and were termed "ox-eyes" (oeils de Boeuf). The upper

with windows having caps, above which was an attic treated as a half story. The roofs on this wing are low and the chimney caps project but little. Only the pavilions make an exception from this. It received above the half story further an upper story with the height of the principal story and with high round-arched windows and a great roof with monumental chimney c caps. His system of the facade was regarded as a model example of festal palace architecture and was frequently imitated on numerous buildings in the succeeding period. The richly sculptured ornamentation was by Jean Goujon (died about 1555 in Italy), France's greatest sculptor, but who was likewise thoroughly acquainted with architecture, and was in part practically employed as an architect. Lescot was a highly cultured artist in refined design, who understood how to combine all elements of architecture in the noblest treatment for the highest magnificence. His court facade of the Louvre appears as the ripest fruit, that the Renaissance produced on French soil after the purifying of the capricious art of Francis I by the classical feeling form.

The second great master of the French high Renaissance is Philibert de l'Orme (about 1514-1570), quite differently equipped in comparison to Lescot, yet no less important and even better known from his many-sided activity as architect, engineer and theorist. After a long stay in Rome already commencing before his 20 th year, where he measured and drew the antique architectural monuments, he returned to France about 1536, and was there first employed as a fortification architect, and in 1548 entered the service of Henry II, who appointed him the upper superintendent of the most important royal buildings. One of his early works is the chateau of Anet (after 1552), in great part destroyed in the revolution, and which Henry caused to be built for Diana of Poitiers. This work is the most original work of the master, an entirely uninfluenced creation. The principal building is grouped around a square court to which leads an imposing gateway (Fig. 303). The columnar orders are here employed, still entirely in the character of the Italian Renaissance. About 1564 de l'Orme received from queen C Catherine de Medili the commission to erect before the gates

of Paris a new chateau, the Tuileries (so-called from the tile-works located on the site), in the vicinity of the Louvre. The master designed a ground plan as an enclosed rectangular design with an imposing main and four smaller courts. (Fig. 301). The construction began with the middle pavilion of the garden facade in massive proportions and in the greatest magnificence. On the facade (Fig. 292) he employed the "French order" invented by him * and **described** in his principal work. (Page 251). The pavilion received two high stories with Ionic columns in the lower and Corinthian pilasters in the upper story, above this being a half story with small round windows and a dome with a crowning lantern as a roof. The adjoining wings were one story arcaded buildings on piers with a roof story treated as an attic, on which high windows were arranged on wide a and low bases in rhythmic alternation, so that the facade received a very animated crowning line. De l'Orme, besides being an architect, also as a learned theorist develeped a very abundant activity. He was a distinguished constructor. By means of the system for roofs named after him, he spanned halls of entirely unusual width, indeed by a well calculated joining of timbérs in a great arch, thus a method of construction generally employed 300 years later for great railway and exhibition halls. De l'Orme wrote several valuable works on architecture, among them also two books on stonecutting, that for a century formed the best and almost the sole treatise on the subject.* * In artistic respects in comparison to Lescot, he inclined toward a dryer and more Barocco conception, to broken entablatures, intersections and a freer loosening of the members, while Lescot excelled him by nobility of forms and refined feeling for proportions and the forms of details.

* *Actually the order "invented" by De l'Orme is merely a more tasteful form of the columns and pilasters with rusticated bands already employed by Sanmicheli.*

* * *In France the enjoyment of technically perfect solutions and perfection in execution led to a refinement in technical procedures in all domains of architectural construction (as p polishing the surfaces and mouldings of ashlars and cornices), and to a very high development of the science of stonecutting,*

that branch of architecture, which concerns the fixing of the bond and the size and form of the different stones for heavy construction (particularly at intersections of vaults, in stairways and the like), with regard to the laws of statics. Thus straight arches (horizontal lintels composed of voussoirs) and trumpet vaults became more common in France than in other countries, and indeed were executed in a masterly way, the latter as conical or spherical vault pendentives beneath projecting parts of the building, for example when angles of the structure of the upper story project above angular corbellings from the ground story.

After the death of De l'Orme (1570) Jean Bullant (1515-1578), who resembled him in literary activity and also in many other respects, carried on the Tuileries further, and likewise in h his youth had made studies of the antique architectural monuments of Rome. He entirely retained the conception of De l' Orme, but was compelled to cease his work after two years, since the queen stopped the building of the chateau in the year 1572 for superstitious reasons. The pavilions of the two wings of De l'Orme's structure executed by him are later, and like that are so greatly transformed -- and not to their advantage -- t that one can scarcely longer recognize his participation. Bullant was the builder of the chateau of Ecouen located some miles north of Paris (about 1531-1564), that belongs to the best works of the French high Renaissance. The chateau was commenced by a master otherwise unknown, Charles Billard or Baillard. Its ground plan shows a great square court, surrounded on four sides by comparatively low wings, the front one of these being treated as an arcade gallery opening inward. At four angles stand boldly projecting pavilions, that in the facade at the left forming the chapel. By small and unsymmetrically added small stairway towers in the angles of the paviliions, the strong accenting of the dormers and chimney caps, as well as the quite mediaevally divided windows of the chapel, the chateau received a waft from the spirit of the French Renaissance. The interior (Fig. 304) had a splendid equipment, as contemporaries and later writers emphasize with praise, but it was in recent times strongly restored, like the entire chateau obterwise.

The remaining secular architecture further produced a series of important chateaus by workmen or less important architects, who adhered in design and details to the chief tenfencies developed by the great masters and to their models. Among the c chateaus of the nobles of this time is to be mentioned the chateau of Verneuil in Picardy, as prominent in magnitude and splendor, a work of Jean Brosse, that consists of four wings enclosing a square court with strongly emphasized angle pavilions and a heavy portal structure, showing in the architecture a free treatment with the adoption of many Barocco elements. (Fig. 305). The citizens' dwellings generally preserve the t traditions of the early Renaissance in regard to their arrangement, but show the character of their time in the forms of t the details. Important works in church architecture in the French high Renaissance are not to be specified.

The late Renaissance (page 252) receives a heavy and dryer character no longer fully corresponding to the French art spirit, by the prevailing tendency for striving after severe regularity and simplicity and the repression of the rich external decoration. Indeed the portions of the Louvre erected by Henry IV, the grand gallery by which a connection with the Tuileries was produced, still exhibit a royal magnificence, yet without ever attaining the artistic height of the buildings of Francis I and Henry II. As the architects are mentioned Baptiste and Jacques du Çerceau, sons of the previously mentioned Androuet, as well as Thibault Metezeau and his son Louis. The stag gallery of Fontainebleau, by the combination of brickwork with ashlars and the entire treatment of forms, bears a tasteless impression. In Normandy, where the brick architecture of the middle ages was at home, this combination rises to a rich and peculiar artistic development. (Chateau of Beaumesnil in Department of Eure). The most distinctive work of the late R Renaissance is palace Luxemburg (1615-1520), erected in Paris for Maria de Medici by Salomon Deprosse, the principal master of the time, a building composed of one elongated wing with a great gallery (for which Rubens created the famous paintings) and four strongly projecting angle pavilions. The external a architecture adheres to the Florentine conception of Ammanati,

indeed particularly to that of the court of palace Pitti (compare Figs. 293, 269). Likewise in the interior (Fig. 306) the Italian classicism tends to purify the crowded forms of the F French Renaissance. The same master was likewise the creator of the principal church of French Protestantism, the chapel at Charenton (after 1606), a Huguenot structure in the form of an antique basilica (volume 1, page 117), and the facade of the Gothic church of S. Gervais at Paris (1616-1621), on which he employed the three classical orders with severely classical t treatment for a powerful and indeed purely decorated building. (Fig. 307). Debrosse was a Huguenot, and as such was already inclined to a severe conception of architecture in the sense of a purely intelligible classicism. His ground principles were even made more severe by the requirements of Calvin, who for a long time exiled all sculpture and painting from churches. But otherwise secular and church architecture, besides the tendency pursued by it, adopted a second deviation therefrom, that indeed adopted the same basal elements, but in contrast to the simplicity there intended for show, frequently took to Barocco forms and often to luxuriand overloading. But always is it the genuine national spirit, which prevails in t these works, producing that interesting combination of French classicism with Italian Barocco art, from which the art of the succeeding period arises.

IV. RENAISSANCE ARCHITECTURE IN GERMANIC COUNTRIES.

1. General Basis and Style.

The earliest influences of the Italian Renaissance upon the architecture of Germanic lands became perceptible in the first decades of the 16 th century, even if only isolated. Against the indeed wonderful acquisitions of the Gothic style, native in these countries, and which included in itself so many elements of permanent worth, completely satisfied the national taste and composed a structural and artistic work of the first rank, the new forms could only advance with great difficulty. The art of the North indeed entered into a new phase in painting and soon afterwards also in sculpture, already at the time when the Renaissance appeared in Italy. But its purpose was one different from that of the South, as also the entire intellectual life was a different one. By humanism the northern a art experienced only a slight intellectual advance; the people had no understanding for its learned idealism. Still less could be stated for it as a "revival of the antique", Antique culture was not at home in the northern lands. The mighty impulses proceeding from their architectural and art monuments, most northern artists could not receive at their source. And if this were the case, they scarcely passed beyond upper Italy. The architecture of the southern countries did not become known to them by their own observation. Thus it was far less the architectural works of the antique, than those of the still u undeveloped art of upper Italy, that transmitted the new circle of forms to masters advancing beyond the Alps. But even this relatively favorable opportunity could not be utilized except by a small portion of the path-breaking masters in the North. The great majority of them were referred to a different intermediary. And this first followed from the buildings erected in German lands by Italians. In numerous cases Italian masters entered the service of monarchs, particularly in Austria and in south Germany as far as the Slavic east, who were in more intimate relations with Italy by relationship or by church connections. According to whether these masters also superintended the execution or only furnished designs, which were then carried out by northern masters, the Italian art

spirit was expressed in a purer or a weaker form. Certain works are kept so purely in the Italian sense, that only the location separates them from the works of the Italian Renaissance. A further intermediary of the Renaissance for the northern masters was through France. But in this way its purport a and characteristics had been much changed by the French interpretation; its motives had lost the clearness and sharpness od the original impression.

Of greater importance for northern architecture was the circumstance, that the Renaissance forms were first adopted by painters for the backgrounds of their paintings, and particularly by copper and wood engravers, being scattered in numerous engravings and prints. The frequently hasty and misunderstood sketches presented by these, whose authors mostly obtained the motives only at second or third hand, were for the great majority of masters in German lands the chief sources of their knowledge of the "antique-like" forms. To these were added other products of the minor arts, that were introduced from France and Italy, utensils, furniture, intarsias, Italian prints and the decoration of books. Therefore it was no wonder, that northern architecture from the first had a tendency to the small; it was hampered by its birth from the art industries. To a higher and grander conception of the Renaissance with its g great problems of the treatment of interiors, as these were f for solutions in Italy, and to its clarified architectural organism the northern master never soared. There was lacking to them just as much in understanding as in training for Italian art. The writings of Vitruvius were indeed received with interest. Already in the year 1539 a Netherlandish master, Pieter Koek of Aelst, published the handbook of Vitruvius, and soon afterwards those of Sebastiano Serlio were issued in 1548 by W. Rivius, a Nuremberg theorist, thus at that time when men had already advanced in the knowledge of the new world of form, the first German translation of the five books of Vitruvius appeared. Yet men did not penetrate more deeply into the spirit of classicism. The majority of architects, particularly the stonecutters, were satisfied by collecting from wood engravings and copper plates the greatest variety and abundance of

ornamental forms for portals, columns, cornices and the like, in order to interpolate at pleasure this treasure of motives. From such models could not be obtained an assured feeling for the relief of the architectural members, for their harmonious combination in the architectural organism and for the scale o of proportions.

These impulses were too far superficial to introduce a complete change in the conception of art and an independent and p powerful development. For this were lacking the necessary basal conditions, as well as intensity and uniformity in the impelling forces. The Renaissance forms come from the outside, and indeed at a time when an innate necessity for a reform in style did not exist. With the diversity of the Germanic races of people, it must be accepted with variations. In any case the Austrians, the Franks in south and middle Germany, and the Belgians stood plainly nearer to the Italian mode of feeling, by direct relations with Italy or by their natural gifts and mixture of blood, than the inhabitants of the North. The artists themselves were willing to give up nothing of the structral and decorative acquisitions of the late Gothic, but also on the other hand did not reject the new ornamental forms. T They counted not a few masters with rich endowments in their ranks. But such phenomenal artist natures as Brunelleschi and Bramante, who had definitely influenced the entire art of their time, did not proceed from them. The problems to be solved also lacked the character of unity. The princely employers w were well inclined toward the foreign influences of culture. But there existed no princely court in the political subdivisions of the Germanic countries, that as in France should have taken a leading part in the art. The imperial cities and the citizen class were conservatively inclined, and from these came most ocmmissions. The church scarcely came into consideration as an important factor in architectural activity. For a need of church buildings only exceptionally appeared alter the high advances in Christian art in the preceding period. And then also the religious inspiration of the middle ages, that had found such an elevated monumental expression in the grand cathedral structures, had vanished from the minds of the people.

A democratic feeling of the citizens was devoted to secular n needs and appeared in its place.

Under such circumstances could not be the mention of a unified art conception, of unified endeavors and a conscious realization of the new world of form in favor of a characteristic development in style. Even the material had its limits to the transfer to northern architecture. The Italian Renaissance was substantially a cut stone architecture. But in the Germanic countries wooden and half timber construction corresponded to the climate and were native, which did not permit a direct employment of the Italian treatment of forms. For the citizen's house it afterwards formed the most favored system of construction. In the ancient domains of brick construction, brickwork continued in use. This indeed adopted cut stone for portals, window enclosures and cornices, but otherwise its entire nature remained faithful to traditions for a long time. For the more important buildings cut stone certainly was the favorite material. On it the northern Renaissance shows ots best effect and its artistic worth; on it likewise most clearly appears the peculiarity of its character.

The style of the northern Renaissance during its entire evolution is not characterized by the development of a definite architectural system, but by mode and manner in which it adopts and employs the new structural members and particularly the means of ornamentation. The northern masters thought first only of a renewal of the worn out ornamental forms for their internal compositions, still created entirely in the Gothic spirit. They at first acceptedfrom the Italian Renaissance only what seemed most striking to them, the antique-like ornamental members of columns, pilasters, consoles, dentils, leaf mouldings, egg-and-dart mouldings, pearl beads and the like, and the ornament, employing these innovations, according to their still defective understanding of their organism, in a very loose way on the entirely mediaeval structure of their buildings and parts of buildings. (Fig. 308). The subdivisions by pilasters and their cornices were applied to the facades of quite different proportions, and particularly constructed with much smaller heights of stories, and especially to their stepped gables,

whereby the pilaster was frequently shortened and the other m members also experienced numerous alterations. Not only did the gable remain in use above the narrow facade of the house,* but also on the longer side appeared smaller side gables above the edege of the roof, frequently very rich in treatment. Instead of the finials formerly crowning the gable were spherical or pyramidal projections (obelisks). The inclined caps of the gable (indeed in imitation of the late Gothic ogee curves on the tracery gables) were curved in animated lines; with steps, fancifully curved bands or ornamental work were laid on the projecting angles. Besides the gables are bay windows, that rise over the entrance to the house, at the centre or at the angles frequently extending from the ground, also often in the upper stories projecting directly from the face of the walls as stairway towers, that are irregularly added to the architectural design, and for city halls flights of steps and balconies form the principal parts of the architectural appearance. They were clothed in the new forms and particularly gave to the bay windows an animated decorative and ssculptured ornament. In the developed Renaissance the towers are structures in stories, subdivided by pilasters, covered by domes and lanterns. A rich treatment was enjoyed by the portals. For the opening of the portal the round arch formed the rule in the developed Renaissance. The treatment was less architectural than ornamental. The windows mostly remained very simple in comparison with the portals. They terminated with a horizontal lintel, but also in part with mediaeval forms of arches. On their enclosures they long retained the Gothic mouldings, particularly the deep hollows in the jambs, down to about one third their height, and the late Gothic tracery in the railings of the bay windows. Likewise in church windows is this frequently retained, even if with a transformation of the lines and details into the conceptions of the Renaissance. (Figs. 335, 359). In general the architectural and decorative ornament was limited to certain especially preferred structural parts, which thereby received an almost independent importance over the general organism of the building.

** The gable is just as characteristic for the northern house, as the towers for the northern church.*

The forms of the architectural details permit the recognition of a very free treatment. The use of columns became general with the northern masters only in the advanced Renaissance, about the middle of the 16 th century. They were not adopted in their classical forms, but all sorts of decorative accessories were given to them. The pedestal of the column already received ornamental decoration. (Fig. 320). The shaft was preferably furnished with overlaid ornamental work in the lower third, the remainder being fluted and not seldom decorated by arabesques (Fig. 319) or even spiral or lozenge patterns, similarly as in Renaissance art. As a rule the entasis is wanting (Fig. 321); on the contrary the frequently swelled and again reduced baluster or candelabra column (Figs. 311, 332),that already occurred in the early Renaissance of upper Italy, (Fig. 212), enjoyed great favor, especially on the bay windows. As a rule the capitals were derived from the Corinthian capital of the Italian Renaissance, yet frequently experienced a t truly awkward transformation. In general men were satisfied with a tolerably rude series of acanthus leaves, from which g grew the dry volutes. Likewise the pilasters were treated like the columns, often being diminished downward like hermes or they were entirely formed like hermes. The latter also found employment as free supports. The cornices mostly have a careless, heavy and frequently an entirely capricious treatment. The architrave was often profiled like the cornice. Definite proportions for the height and projection of the different mouldings were not adhered to. If one meets with a careful graduation according to fixed canons of form, nearly always is to be assumed the participation of Italian masters or the direct influence of Italian models. considered as a whole, the northern architectural works of the Renaissance remain far behind the Italian in regard to organic development, unity and in enclosure. Artists of higher standing, who knew the Italian architectural works by personal observation, acquired less esteem for the native architecture, and at least in southern Germany, they sought to present a substitute for it by facade painting, when they covered the plain wall surfaces by a sham architecture animated by figures, or by painted ornamental work.

In the internal decoration likewise the use of ornamental w work is less extended over the whole, than concentrated on certain principal parts. The endeavor to first care for a good internal effect is thereby diminished. The great halls of the palaces are mostly very long and low and are therefore out of proportion (Fig. 352); but as a rule they reach a very tasteful harmony by good lighting through grouped windows, by the materials employed, by the color treatment and the charming handling of the details, particularly of the doors, fireplaces, stoves, bay windows and the like. In the technics, decorative arts and the entire art industries, the northern architectural and industrial workers show themselves to be masters of skilful construction, thanks to their strict organization in the g guilds. For the walls in both the palaces and also the better houses of the citizens, wood is the preferred material in the form of high panelings. In the anterooms the walls were frequently left white, but the doors received extremely impressive enclosures. (Fig. 313). Wood was left in its natural tint or but slightly stained. The enclosures of the doorways and the paneling in the richer treatment (Fig. 312) have an entirely architectural elevation with subdivision into base, pilasters or columns with cornices and cap like a pediment. Even the r rustication is not seldom imitated. (Fig. 313). The bands and framing are then more strongly expressed than in facade architecture. Stucco decorations commonly occur in the palaces toward the end of the 16 th century, but first in civic architecture in the 17 th century, and indeed mostly in a relatively simple treatment. If the ceilings are horizontal, then occur on them chamfered or moulded beams as in the middle ages. The interspaces are plastered. With a richer treatment were constructed the wooden ceilings imitated from Italy with divisions into panels in the forms of squares, polygons, crosses, stars, rectangles with rounded corners and the like, that are connected together by beams. (Fig. 314). The panels and frieze are frequently treated with animated ornamental decorations. The vaults were at first shaped still as ribbed net and cross vaults, but later as cross vaults without ribs. Secular architecture in general made use of them only in subordinate rooms (ov-

over entrances, vestibules, passages etc.) and they are then The buildings more closely approximating the Italian tendency also employ tunnel vaults and domes. These received ornamental subdivisions with regard to the walls by continuing the pilasters in cross arches, or in addition to the groin lines, or even in an entirely ornamental treatment.

In the interiors of the churches stucco found abundant employment. On the same church buildings, that were still designed in Gothic style, the treatment remained comparatively simple. To the walls was occasionally given an externally conceived decoration, such as developed on the contemporary secular architecture. Renaissance pilasters and half columns, n not infrequently commencing at the height of the windows and resting on consoles, bear a main cornice from the rise of the net or cross vaults. (Fig. 315). The ribs were enlarged by egg-and-dart and leaf mouldings, pipes and other Renaissance motives. In the churches, which adhere more closely to the Italian, the pilaster system is completely executed. Also t the entire decoration then receives stronger impulses from Italian art. The chief ornament of church interiors lies in the altars, rood screens, pulpits, organ galleries, choir stalls, tombs and epitaphs. They are all clothed in the form system of the Renaissance, frequently rise to a considerable artistic height, and not rarely are of unique beauty. On the choir grilles preserved in many churches also appears the peculiar style of the northern wrought iron tecnnics. It is characterized by round rods rolled in spirals, its numerous passes, by the beating out of the bars at definite and rythmically arranged places into flat decorations in the form of grotesques and fanciful animal forms, and in the endings of such leaves and conventionalized flowers. (Fig. 316).

The ornament is derived from the Italian, particularly the Lombard Renaissance, that either found entrance directly or through Burgundy and France, but soon begins an independent development, though varied in kind and style as well as in t the different countries. The earliest ornamental form penetrating from Italy is the arabesque. (Page 192). The Netherlandish and particularly the Flemish early Renaissance adhered so closely to the Italian conception, that for certain works

one might believe, that they were executed by Italians. Besides there is geneeal a somewhat dry treatment with broadly pressed foliage and scroll work, that plays around the medallion arranged at the middle and the head forms projecting in strong relief. The same ornament occurs on the dower Rhine and in Westphalia, but there with a somewhat more refined and graceful treatment of forms. It southern Germany the acanthus was partly transfermed into heavy and fleshy leaf sheaths, the scrolls of dry shape and mostly limited to one turn growing out of vases, dolphins and cornucopias (Basle and Augsburg), partly was it carefully modeled in small and graceful motives, when the acanthus leaf often terminates in small volutes. (Nuremberg). In the treatment of arabesques north Germany is partially dependent on the Netherlands and Westphalia, and partly on south Germany. Besides the acanthus in the northern Renaissance is quite commonly employed a long stemmed and three lobed leaf, borrowed from the leaf outline of the acanthus. (Fig. 317). In the much used sketches of the important Westphalian engraver Aldegrever (1502-about 1555) this leaf forms the basis of the ornament. In the intarsias the ornament changes entirely into a pure flat form and thus to Moresco (volume 1, page 214), which already found frequent use in the Italian Renaissance. (Fig. 318). Nearly allied to the Moresco is the overlaid ornament, developed about the middle of the 16 th century and most characteristic of the northern Renaissance. * It consists of linear interlacings widened to bands and very slightly projecting, then connected together by stems and by the nail heads, screws and the like, appearing to be fastened in a manner recalling perforated metal plates. (Fig. 319). If the ends project and are rolled up, this produces the rolled work. (Fig. 320). This finds its s strongest expression in ornamental shields, the so-called cartouches, * * where two or more plates are laid over each other, are cut out like overlaid ornaments and appear to pass t through each other. Stereometric forms like paneled ashlars, pyramids, sphynxes, spheres, stars, grotesques, masks, lion's heads, garlands of fruits and the like, there serve for ornaments, as also on overlaid decoration. By overlaid and rolled

ornament the foliage ornament of the early Renaissance is almost entirely supplanted. These dominated the minor arts in wood and metal sculpture in the same manner as the ornamental forms of the architecture, indeed until the beginning of the 17 th century. Then it passes into the ugly gristle style,* * * that on its part forms a precursor of the Barocco style and directly leads to that. The painting also makes use of the grotesques (page 192) derived from Italy, for the decoration of ceilings and vaults, more rarely for the ornamentation of walls. Yet the grotesques did not extend beyond the German states (Austria and southern Germany), and there as a rule, was executed under the lead of masters, who had received their training in Italy. (Fig. 339).

** As the original creator of overlaid ornament is to be regarded the Nuremberg sculptur, form-cutter and ornamental draftsman, Peter Flötner, with whom the first design originated about 1540. He died in the year 1546.*

** * Cartouche is a pasteboard roll.*

** * * The gristle style is also denominated "ear muscle" style, since it transferred the scholl-like round forms of the human ear to frame and ornamental work.*

Among architectural works chateau architecture stands in t the first rank. In the 16 th century was completed the transition from the castle to the chateau; but only in the second half of the 17 th century did chateau architecture lose the reminiscences of defensive architecture. At first the chateaus are mostly transformations and extensions of earlier designs. For new buildings the French chateau architecture was in general a model. Larger designs almost always received two courts (lower court as the external, and court of honor as the internal court); on small chateaus men were satisfied with one court (court of honor), around which on three or four sides are grouped the wingu of the building. For new buildings regular plans predominated, even if strict symmetry be not always considered. The angles were accented by towers or bold frontispieces. For the arrangement of the ground plans, also more than before was regard for convenience determinative. In the mediaeval castle passage occurred through the

rooms. Now passages were arranged, even if not always. In princely chateaus men intentionally adhered to the rule, that the apartments occupied by princes should only be reached through rooms in charge of servants. In the southern countries the great chateaus mostly have a rectangular arcaded court, where the porticos as corridors form the communications for the rooms. (Fig. 321). But farther north the chateaus have but little corresponding to the Italian palaces. To the creative spirit even there was wanting the grand monumental sense peculiar to the Italians. Only compare certain parts of the old palace at Stuttgart with such of Italian palaces in order to realize how far removed the art conception of the northern masters was from that of the Italian associates in time and in art, how those old and new motives were mingled without restraint and placed beside each other. (Fig. 322). Indeed with all simplicity we cannot deny to their works a strongly picturesque charm. The Italians sought even to elevate the simple dwelling to a palace; but in the North even the prince's chateau retained rather the character of a citizen's house in design and treatment. The ground story was m mostly utilized for the official and housekeeping rooms, the second story for the court, and the third for the servants. The most important rooms were the audience room with anteroom, the festal hall and the chapel of the chateau. The number a and size of the living rooms were still kept within moderate limits. Besides these and the halls only the vestibule, stairways and entrances were artistically treated in the forms of the Renaissance. But the chateau chapels mostly still remained Gothic until in the beginning of the 17 th century. (Fig. 324). The citizen's dwelling in the cities of south Germany, in a rich construction, adhered to the court with porticos, that had already developed in the Gothic period. The ground story contains the business and warerooms. The living rooms are found in the upper story; they frequently have a s spacious and tastefully treated anteroom. In the Netherlands, in north Germany and in Denmark, the entrance doorway leads into a high vestibule, the hall, and in narrow buildings into a lobby, that occupies the entire width of the house. Direct-

Directly from the vestibule or lobby a stairway leads to the upper story. This is treated with particular attention, partas winding stairs, partly as a straight flight. Already early appear picturesque designs. By these and the galleries, which lead to the adjoining rooms of the upper story, the vestibule, already imposing by its height, acquires a very tasteful effect. In city halls the 16 th century is especially r rich. They exhibit the endeavors of the cities to impressively treat the seat of the city government. As in the Gothic period, the ground story has large porticos and vaulted rooms for merchants; the upper story, to which a great external flight of steps often leads (Fig. 323), contains the great citizens' hall, rooms for the sittings of the small and the large councils, rooms for writing and for the court of justice. Not seldom is a tower connected with the building, as in the middle ages. The equipment is frequently splendid, particularly in the great hall of the citizens. The universities precede the other public buildings. In their ground plans their original relations to the mediaeval monastery designs cannot be denied. The buildings for commerce and traffic, exchanges, (bourses), granaries, guild houses and the like, are mostly so changed internally, that their original condition can no longer be recognized.

Church architecture did not attain to a proper development in the northern Renaissance. The violent religious wars, that disturbed the period, were as unfavorable as possible to its suitable evolution. Until in the last quarter of the 16 th century and even later in the 1. th century, indeed until the end of the 30 years' war, men adhered in general chiefly to the Gothic character, both in pure external design and in combination with Renaissance elements. The ground form was still the hall church with choir aisle or a simple choir. F From about 1.80 onward the Jesuits developed great architectural activity. But they did not transfer the plan scheme of the Jesuit church in Rome to the northern churches, as one might believe, but especially in the Netherlands and on the Rhine also built three aisled churches after the mediaeval arrangement. These churches always permit the recognition of

_ certain greatness in the architectural disposition. Otherwise the northern churches in the majority lack in design and equipment a treatment intended for an impressive internal effect.

With new endeavors Protestantism, arising in the Renaissance period, took up the plan. In the Catholic divine service the offering of the mass forms the most important part of the church worship, in the Protestant the sermon, on the contrary. A suitable arrangement of the pulpit was therefore first to be cared for, and indeed in such wise, that all members of t the congregation and from all places in the interior of the church could see and properly understand the preacher. Therefore thought must be taken to give the pulpit as central a l location as possible in the interior of the church. For administering the communion was also retained a restricted and indeed very simple altar service. The protestant divine service theeefore has two central points, to which must be directed the eyes of the devout, the pulpit and the altar. Men h had the problem of so arranging these, that both could be seen well and at the same time, whenever possible. The entire architectural design of the church must be arranged accordingly. The Renaissance never reached a completely satisfactory solution of this problem; perhaps it has not been found to t this day, even if some church buildings of the later time have come very near to it. Indeed attempts were not wanting to take the central structure as the ground form of the Protestant church. Yet a definite normal form has never been attained. Frequently the organism remains the ancient one, and only the position of the altar, which chiefly appears as a table simply constructed of stone, as well as the always fixed seats, directed towards the pulpit and altar without regard to any definite axis, and the insertion of galleries with similar seats gave the interior a changed character. In the l late Renaissance the hall chucch with a small altar niche, at whose sides stand beside the altar the pulpit and the font, with the organ gallery at the opposite end, became a commonly occurring form of the Rrotestant House of God. * The ground plan thus received the form of a rectangle, where the altar

was either placed at one end, whose corners were then generally cut off, or at the middle of one longer side. For this p plan the chapel in the old chateau at Stuttgart (after 1533) became typical. (Fig. 324). It consists of a rectangular hall with polygonal bay window niche on the longer side, in this being the altar, beside on the angle of the wall being the pulpit. On the opposite longer side and at the ends are arranged galleries. Thus the requirement was satisfied in a proper manner, that the altar and the pulpit should be seen well from all places.

** Debrosse, the chief master among the Huguenots had chosen for his chapel at Charenton (page 234) the basilican plan of the antique with the alteration, that galleries in two stories extended around the high central interior.*

To the simplicity of the divine service corresponded a great reduction in the treatment. The artistic effect of these halls for preaching therefore remained far behind that of the religious buildings of Catholicism. Certainly there also originated in the Renaissance some Protestant church buildings worthy of consideration. But Protestantism first aspired to grand and monumental effects in some structures of the succeeding period.

The development of the northern Renaissance shows us, that even in it, as in Spain and France, Gothic and antique ornamental members at first often directln appeared together, were gradually better combined with contemporary additions, and s slowly fused together. This mixture of styles in the native art with the new form elements denotes in all countries the character of the early Renaissance. It corresponds in the h history of the evolution to the Quattrocento of upper Italy. its buildings are full of picturesque charm and frequently w with an almost overloaded decorativi richness. In the course of the 16 th century the forms were clarified. About the middle of it is developed the proper northern Renaissance, the high Renaissance. At about the end of the century again occurred a change in style. At the courts and the buildings under their influences the Italian tendencies in their more severe and scholastic conception acquired new power and finally

the control. The late Renaissance commenced. But in the art of the people, particularly in the more distant provinces, t the mediaeval motives were retained until in the first quarter of the 17 th centurn, in which they completely disappeared under the gradually established dry elements of the beginning Barocco style.

II. Evolution in the Different Countries and the Monuments.

1. The Netherlands.

To the Netherlands belonged in the 16 th century, besides the existing kingdoms of that name and of Belgium, also Luxemburg and some adjacent provinces of France, being altogether 17 provinces, each one of which had a certain independence in its government. In the northern provinces predominated the German language and culture; in the southern the Romanesque= Frence (Walloon) had the preponderance. Under Charles V (page 242), who was himself born and brought up in the country, it reached extraordinary prosperity by the flourishing commerce and industries. But under his son Philip II began about 1566 the insurrection of the Netherlands against religious and political despotism, and then originated those long and bloody wars for freedom from Spanish rule, as a result of which the northern Netherlands (Holland) freed itself from Spain, while the southern provinces remained under Spanish rule. These were held by Catholicism; but Holland became Protestant. The national and religious opposition between the southern a and northern Netherlands likewise impressed itself on the architecture.

About the end of the 15 th century (about after 1480) the first isolated Renaissance motives under Burgundian influences penetrated into the flourishing late Gothic of the Netherlands; but only with the beginning of the 16 th century did they acquire a greater extent. Belgium preceded in time. Already before the end of the second decade buildings arose there, on which the architecture exhibits the predominating character of the Renaissance. In the thirties appeared an earnest endeavor for a more severe architectural subdivision, even if also on the whole only a certain sham organism was at-

attained, which was broken by details of independent creation. The ornament (acanthus arabesques) at about this time was already surprisingly pure. About 1540 began a zealous study of the Italian theorists, from then onwards expressed in the ecclesiastical and secular architecture, in the former particularly by the architectural activity of the Jesuits, an ever deepening influence of Italian art, which also continued when the Belgian architecture -- about 1610 -- passed into the Barocco.

The forst architectural monument of the Belgian Renaissance was designed by a Burgundian master, Guyot de Beauregard, whom margaret of Austria, Stadtholder of the Netherlands, took into her service for the building of her palace at Mechlin. (1517). The execution was supervised by Rombout Keldermans of Mechlin, the first important Netherlandish architect of the Renaissance, but who still stood entirely on the stage o of the transition from late Gothic to the Renaissance. The palace is a simple structure with somewhat timid and predominating French forms. Its principal effect lies in the two great gables of the front and side facades. The house zum G Grossen Salm (great salmon) in Mechlin (1519) by Jan Borremans from Brussels already shows on its very narrow facade three orders gracefully executed with rich ornamental decoration. The beautiful old chancery building at Bruges (1535-1537) was designed by Johann Wallot and built by Christian Sixdeniers (Fig. 325), has two orders with stronger lines in general.But the cornices are still very restrained and profiled without intelligence. On the gables the Gothic reacts in the curves and the crockets. But the ornament scattered over the facade (acanthus arabesques) is already entirely pure. The Belgian Renaissance exhibits its full maturity in the stately city h hall at Antwerp (1561-1565) by Cornelius de Vriendt or Floris, * a pupil of Giovanni da Bologna, and Paul Snydincx. On it the Italian symmetry is combined with the northern art in design in a very happy manner. (Fig. 32-). The palace-like facade extending in width and broken by a richly subdivided middle projection has above a portico-like rusticated lower story two small pilaster orders resting on the pedestals of the window parapets and a crowning half story, treated as an open

gallery. The strongly aspiring middle building passes into a tower-like termination. The general impression is entirely Netherlandish. More details in the restrained academic tendency may be seen on the justice building at Furnes (after 1612) and falling in the 17 th century. Its two story facade has in the ground story the Doric and in the upper story the Composite pilaster order in noble, though also freely handled treatment. This building is the last important work of the Belgian Renaissance. The palace at Brussels (completed 1564) built for the cardinal and statesman Granvella still in the 16 th century by Sebastian van Noyen (died 1557) and his son
226 Jacob van Noyen (died 1600) exhibits a direct transfer of the Italian late Renaissance to Belgian soil by the architects. The elder van Noyen had made studies in Italy and had published (1562) a great work with drawings of the buildings of antique Rome. The art tendency introduced by them found no other followers.

* *Cornelius Floris is designated as the inventor of the cartouche; but the cartouche appears to be actually of older date. On the other hand, he is the creator of a distinct ornamental style, named after him the Floris style, that is characterized by simple cartouches in combination with hermes, f festoons, bands and similar motives.*

In Holland the old traditions were longer and more strictly preserved. True Renaissance buildings first originated there about the middle of the 16 th century. On them from the beginning appeared an energetic striving for national independence. Holland art is an expressed assertion of the citizens' spirit prevailing there. Therefore it is less ideal than realistic and pursues definite external aims. If these are attained, then a harmony in the work is cared for in regard to the formal treatment. And therefore its works have an innate truth, a striking expression of their purpose, such as not a always attained in other creations, in which the endeavor for monumentality predominates.

In general arlhitectural activity in the second half of the 16 th century was greater in the Holland provinces, than in the Belgian. The Holland house as the Belgian showed a stron-

strongly emphasized vertical tendency, indeed in a reaction of the Gothic, which had become deeply rooted in the people and had produced in the city halls works, that were no longer surpassed in the later periods. The columnar and pilaster orders were mostly set with very small intervals. They were far less employed in Holland that in Belgium, and indeed almost entirely for public buildings, partly for entire facades, partly for the upper story alone, in the latter case being sometimes set on projecting consoles. But they never succeeded in a satisfactory combination with the national forms. C characteristic of the Holland Renaissance is the combination of bricks with cut stone, and the strong color effect produced by the alternation of the materials. Projecting blind arches consisting of brich and cut stone voussoirs, over rectangular windows, horizontal continuous belts and ashlars with bosses set at the angles and vertical edges, wrought iron anchors as ornaments, and in the general appearance a picturesque and unsymmetrical grouping with a harmonious equilibrium of the architectural masses, animated outlines by means of t the high stepped gable and fanciful forms of towers (consisting of superposed diminished low stories with galleries, open aisles and ogee domes are the chief characteristics of the style.

Of the more important architectural works, the city hall in the Hague (after 1564) yet recalls the Italian Renaissance in its subdivision. The developed Holland style is exhibited by the city hall at Franeker (1591). But it is most strongly e expressed on the abattoir at Harlem(1602-1603; Figs. 327, 328) by Lieven de Key (died 1627), which like the former, entirely rejects pilasters, columns and cornices in the sense of the classical treatment. On the city hall at Leyden erected at the same time (1597-1604), which is likewise ascribed to Lieven de Key, the imposing middle building with the flight of steps in front, pilasters, columns, hermes and cornices has a form treatment allied to the Renaissance. But the general appearance is entirely Dutch. In the further development the influences of classical art make themselves apparent in increasing measure. The pretty city hall at Bolsward, built in

1614-1616, shows in the upper story projecting columns on consoles and carefully designed cornices. (Fig. 329). The shafts of the columns are crossed by intermediate belts, so that the face of the wall seems held together. The leading masters of the late Holland Renaissance is Hendrick de Keyzer (1567-1621). Among his works the Protestant churches merit consideration, which he erected in the recently established parts of the rapidly growing capital, Amsterdam. The Zuider church was built 1603-1611 and has the ground form of a three aisled rectangular hall building with pulpit at the middle c column. The elevated middle aisle is covered by a tunnel vault with transverse arches, and the side aisles by cross vaults. At one angle is built a square tower (Fig. 330). The Wester church (1620-1638) has the same transverse design; b but the tower projects on the longitudinal axis. The structure follows the basilican scheme (with clearstory). Here the two extreme intersection are extended as transepts to the height of the middle aisle, while the Zuider church merely has two transepts indicated by the height of the side aisles. T The two external longer sides were very effectively treated thereby. The architect wished also by this to emphasize the transverse axis on the exterior, also accented in the interior. The Noorder church (1620-1623) has the ground form of a Greek cross with low triangular additions. (Fig. 331). The four free piers support a central cross vault; the cross arms have tunnel vaults. The pulpit stands at one pier of the crossing. The seats are arranged concentric with it, so that the diagonal becomes the main axis. Thereby Keyzer neutralized in a bold way the disadvantages of the cross plan of a church for preaching. All these churches lack galleries. T Their architecturel like that of the secular buildings of the master (East India Court in Amsterdam and Mint at Enkhuyzen) a dry and severe character, developed merely with intelligence. But yet his school found in Holland animated approval a and wide extension, entirely dominating the architecture of the later Dutch Renaissance. About the middle of the 17 th century was introduced a new period of development.

More than for its artistic and esthetic side the Netherland-

Netherlandish architecture of the Renaissance must be esteemed for its great historical importance. As we shall see later, it exerted a determining and permanent influence, not only on the architecture of the adjacent countries, but also on that of the German coast provinces as far as to the Slavic East.

2. Germany, Austria and Switzerland.

A. Historical Basis, Evolution and Style.

In the period of the Renaissance (after the imperial diet at Cologne in 1512), Germany consisted of ten circles, including Austria with the exception of the Bohemian provinces, H Hungary and the southern Netherlands, thus of small territories, internally capriciously governed and externally weak, u under the supremacy of the emperor. Under Charles V, the heir of the German-Hapsburg and Spanish-Italian countries, Germany formed a portion of the Hapsburg world empire, and as s such was developed in its interests. Charles' reign (1519-1556) was not fortunate for Germany. He chiefly resided in Spain (page 241), leaving Germany to the imperial government and to his brother Ferdinand, reigning after 1526 as king of Bohemia and Hungary, (the later Roman-German emperor). While he waged long wars with France for the possession of Italy, there occurred in Germany violent religious wars by the reformation, and in connection with these the bloody peasants' war broke out. The former resulted in the division of the empire, which restricted a peaceful internal development. First after the religious peace of Augsburg (1555) began an improvement, and under Ferdinand I (1556-1564) and Maxamilian II (1564=1576) the German countries enjoyed a period of continued peace and of high material prosperity, which certainly was lessened by political divisions and bitter religious strife, not only between Catholics and Protestants, but also among the Protestants themselves. Under Rudolph II (1576-1612) set in the counterreformation, aiming on the one hand at an internal strengthening of Catholicism, and on the other to fighting P Protestantism and recovering the provinces conquered by it, and whose supporters were principally the Order of the Society of Jesus. From the opposition of the Protestants to the

suppression of their confession by the Bohemian king Ferdinand (later emperor Ferdinand II), favorably inclined toward the counterreformation, originated the thirty years' war (1618-1648), fatal to Germany in the highest degree, by the destructive conduct of which, the German countries were completely devastated and exhausted, the population reduced to a fourth, and the ordinary and intellectual civilization was destroyed. On the development of art was exerted a determining influence by these political conditions, deeply injuring the life of the people and the mind.

In the eighth decade of the 15 th century the influence of the Italian Renaissance in Germany becomes perceptible and i indeed as elsewhere in the works of the minor arts, in wood engravings, on the backgrounds of paintings, on altars and tombs. Soon afterwards German mechanics, who had gone to Italy in their wanderings, and Italian architects and stonecutters, who sought employment on this side of the Alps, transferred the forms acquired in the south to the northern buildings. In the first quarter of the 16 th century already originated certain works, in which the Renaissance motives maintained their predominance over late Gothic forms. After 1530 the Renaissance increased its extend north of the Alps, beyond the Thuringian forest and the Erz mountains. It exhibits from the beginning onward a mixed variation and a certain inclination to Barocco forms. The Gothic reminiscences continued until in the beginning of the 17 th century. *

** On the Peller house at Nuremberg (1605), whose facade entirely belongs to the late Renaissance and already shows Barocco tendencies, the entrance and the rooms in the ground story are still furnished with splendid late Gothic vaults, and the parapets of the court facades have tracery.*

In the general view of German Renaissance architecture appears an expressed contrast between the southern and middle,a and the northern German provinces. On the one hand it is based on the diversity of the character of the people, on the o other on the inequality of the acceptance and influence of I Italian art. In the south, where men were particularly receptive of new ideas by the commercial relations with Venice,

Burgundy and Spain by the great mercantile associations, the new form world found entrance directly from Italy, and even it it lost much of its purity, yet it substantially formed the determinant of the artistic expression. The portal represented in Fig. 332 seems like a direct transplanting of forms from upper Italy to Austrian soil. But the north received its impulses only exceptionally from Italian masters. Almost entirely they came in an already weakened form and with a stamp already in the sense of the northern conception, and indeed only for the smaller part from middle and southern Germany, but instead in a broad stream from the Netherlands. In both cases it was met as something complete, that required no further transformation. Therefore to the north was lacking the period of growth, the early Renaissance, which in southern and middle Germany took a development similar to that in France and the Netherlands. The early Renaissance of the north must be sought in the Netherlands.

There were some important native masters, among whom first of all were the painter Hans Burgkmair in Augsburg, the two Holbeins in Augsburg and Basle, and the bronze sculptor Peter Vischer in Nuremberg, who appeared as the path-breakers of t the Renaissance and therefore exerted a deep influence. Their endeavors were aided partly by the imperial court, partly by princes of certain smaller states, which in their independence sought to equal and indeed to surpass the splendor of the imperial court. Thus developed certain centres for Renaissance art, of which the courts of the humane emperor Maximilian, well inclined toward the arts and sciences, and the Palatine and Bavarian princely house of Wittelsbacher are to be mentioned in the first rank. But in general the princes had too much to do with the religious and political tumults of the time, to be able to adopt and realize grand architectural ideas. The mightiest impulse to activity in art lay in the citizen class. There indeed reacted the conservative sense more strongly, as it had developed in the city commonwealth and in the guilds. However the citizen class already from the beginning took part in the movement. The Fugger family in Augsburg, for example, was scarcely inferior to the cl-

class of territorial princes in the encouragement of art.

Until the middle of the 16 th century the Renaissance in southern and middle Germany permits the recognition of a progressive adoption of the new form elements, whereby a peculiar change to a purer development became apparent to but a limited extent. About 1550 it passed into the stage of its maturity. Already a decade later on certain buildings becomes perceptible the beginning of a further development; about from 1580 onward this appears generally. It is expressed in an energetic striving for severer proportions in the composition and the facades, and for a purer treatment of the members. The influence of the Italian Renaissance comes into force in increased measure. Some important northern masters, to whom the Renaissance forms offered nothing new, and who were capable of deeper conceptions, went to Italy; there the works of the great Palladio made a deep impression on them. Thereby the classistic endeavors in the sense of the Palladian school also became effective in German architecture. Since the Italian art about this time passed into Barocco, it was unavoidable, that also the German now received a strong Barocco impulse. The heightening of the effect, for which men strove in Italy with full clearness of aim by elevation of the monumental expression, was sought in Germany in attainment by other means, particularly by the enrichment and overloading the decoration (Fig. 333), the accenting of details, the heaping up of sculptured and ornamental decorations, the frequent use of the cartouche and the transformation of the ornamental motives into the gristle style. Indeed a laboring for grand monumental effect in Germany cannot be denied; on not a few works was this also attained. But the general character of the period is not determined by them. The lofty flight in architectural ideas and the harmonious perfection with a conscious aim in the sense of the Barocco idea was not allotted to this epoch of German art. It rather maintained on this stage its entire nature according to the character of the Renaissance.

Thus we have to distinguish three epochs in the architecture of southern and middle Germany, the early Renaissance of

about 1500-1550, the high Renaissance of 1550-1580, and the late Renaissance from 1580 to the end of the 30 years' war. (1648).

In north Germany the first influences of the Renaissance m make themselves apparent about the middle of the 16 th century. They come from the Saxon provinces and show themselves almost entirely on the shells with spheres added over the steps of the gables, in the division of gables by pilasters, a and on the tasteless projecting cornices. After 1550 began the victorious march of Netherlandish art over all Germany from the Weser to the Danube. By the active commerce between the Hansa cities and the Netherlands, that also related to a artistic products, the soil was already prepered. It is also proved that Netherlandish artists extended their activity far to the east. In certain coast cities, particularly in Danzig, Netherlandish art found direct and unchanged acceptance. During the entire second half of the 16 th century the north t then developed an extremely strong activity, which continued even into the 17 th until late in the 30 years' war. It floorished in the external and also especially in the internal architecture in much greater richness than in south Germany, but was already from the beginning strongly inclined to Barocco forms, which with the beginning of the 17 th century took the upper hand, so that they gave to the succeeding northern architecture an almost Barocco character; certainly this was not, or only exceptionally expressed in grand Barocco compositions, but rather in the style and richness of the decoration.

Thus the Renaissance in north Germany had only two periods of development to be mentioned, the high Renaissance of about 1550-1600 and the late Renaissance of 1600 to about 1650.

In the style of the German Renaissance the characteristics mentioned on page 269 become most prominent; in the early period the restrained and purely external employment of the antique subdivisions (Fig. 308), and also in the developed Renaissance the long continued (until in the 17 th century) mixture of styles (Figs. 334, 335), and further the permanent difference between the Italian and the northern art conceptions, the lack of grand treatment of interiors, the picturesque

grouping of the architectural masses, the accenting of definite parts of the building, the steep roofs with the high stepped gables, or those bordered by capricious curved forms (Figs. 335, 356), the free treatment of columns, pilasters and cornices, the preference for candelabra supports and hermes, the rich ornamental , indeed both sculptured as well as painted decoration. Likewise the internal decoration and the ornament have already been fully described. For the works concerned, stone construction was intended, so far as relating to the facade architecture. But in German wooden construction also found zealous employment. In it the old traditions continued more strongly. Yet also this derived abundant gain from the treasure of forms of the Renaissance. Two systems of construction in it may be distinguished, the log and the half timber construction.

Log construction is the method of building in mountain regions, particularly in the Alps, their offshoots and in the B Bohemian forests. In it the walls are built of trunks of trees or hewn timbers laid on each other. (Fig. 336). The connection with the adjacent walls results by dovetails and projections, so that a very strong connection is produced. The most extensive use was found by log construction, as well as wooden construction generally, on the houses. The ground story of the Alpine houses is chiefly of stone, the upper being of wood with widely projecting galleries. In the front are the living rooms, in the rear being placed the stable and the sheds. The whole is covered by a low and strongly projecting roof, covered by wooden shingles and often loaded with blocks of stone. Also over the doors and windows small caps were frequently placed as a protection from injury by the weather. Ornament is but sparsely employed on the portals; window enclosures, galleries and the carvings on the external planks. The Black Forest house does not essentially differ from the Alpine house in plan and treatment. It has on a low stone g ground story a living story sheathed with boards, over this being a widely projecting and partly hipped roof covered with straw. (Fig. 337). The attic is used as a shed. To permit driving into the attic, the house has its rear against a hill

or an inclined driveway. Decorative ornament is but very sparingly applied. These dwellings in the Alps and the Black F Forest have a very picturesque effect by the deep shadows cast by the projections of the roof, the galleries and caps, by the warm tone of the wood above the dazzling white plastered substructure in the fresh green of the mountain landscape, w with which by the suitability of the construction , it appears to have grown up. (Fig. 337). *

** We have mentioned the architectural style of the mountain regions with the half timber construction of the Renaissance, since its construction and mode of decoration are substantially determined by those of the Renaissance. The existing buildings also seldom date from an earlier time.*

Half timber work constructs the walls with posts, that stand on sills and are tenoned into plates above. The posts are stiffened by horizontal girts or by inclined timbers (braces or ties), the remaining panels being filled with brickwork or also with straw mixed with clay and wrapped around sticks. On the plates rest the beams, whose ornamented ends generally p project beyond the lower face and bear the sill of the upper story. Hence originated the corbelling of the stories, which afforded statical advantages, while it prevented the bending outward of the front walls; it likewise permitted increased use of the interior and gave to the facades a suitable division between stories casting deep shadows, at the places accented by bold cornices in stone construction, recalling architectural motives by the corbel cornice. On the beam ends and plates, portals, the corner and even the middle posts, on the window parapets and enclosures cound extensive employment, p partly the antique treasure of motives in very tastefully changed wooden forms suited to the material, partly the ornamental riches of the time. (Fig. 338). The gable in imitation of stone construction often projected above the roof in carved forms. The north German wooden construction is quite regularly executed. The posts are mostly uniformly spaced and are set vertically over each other. The timbers and panels have a rich decorative ornamentation. (Fig. 338). It is less severe in south Germany. The posts are very freely spaced a

and the beam ends are often concealed by wooden cornices. T The wooden have less projection. The entire decoration is limited to the curving and crossing of ties, which are frequently arranged in the form of flat patterns. As a rule only the corner posts and the enclosures of doors and windows are ornamented. At some time these half timber structures, that reached a high development in Swabia, in their simplicity often have an effect, grand in a certain sense and frequently even monumental. *

* *Half timber construction was already treated artistically in the middle ages and even in the Germanic early period. In Germany it attained in the time of the Renaissance its richest development. The Barocco, which worked so much with imitative materials, allowed it to disappear under the coating of plastering.*

In regard to the architectural works, what we have said on pages 2/7 to 282 on the chateaus and other secular architecture, as well as on the Catholic and Protestant church architecture, applies to German architecture in its entire extent. Likewise in the German Renaissance, chateau architecture stands in the foreground. But since in chateau as well as in church architecture native masters alternated with Italian, and the latter not infrequently predominate, the specific German and the peculiarities of a definite architectural domain less plainly appear. The city and private buildings express far more than the chateaus the character of the country. *

B. The Most Important Monuments.

* *The consideration of the monuments of the German Renaissance we cannot carry out in the previously employed sequence of the periods of development, because the Renaissance occurs irregularly in the German countries, proceeds from different points, and the unified development of the style also lacks like architectural periods and regions. By an arrangement a according to the species of the buildings, so that we may successively describe the chateaus, churches, public buildings, private structures etc., the general view of the architectural activity in the different countries according to their kinds and importance, which we have to emphasize, would be ent-*

entirely lost. Therefore we shall consider the monuments according to the separate architectural regions, thereby retaining in general the sequence, which is given by the general course of development of the Renaissance in Germany and by t the predominance of the principal tendencies.

In the adoption of Renaissance forms south Germany precedes. The rich commercial city of Augsburg stands in the first place. By its animated traffic with Venice, the earliest influences came from Venetian art. Some important masters had prepared the soil. There worked Hans Burgkmair, very gifted in forms (1473-1531), who exhibited in his paintings the realism in the free conception of nature characteristic of the period of the Renaissance, was indeed doubtless in Italy before 1500, and introduced the new forms in his paintings and drawings f for woodcuts. He can pass for the first German master, who aided the transition to the new style. Beside him worked in the same sense the intellectually allied elder Holbein (about 1460-1524). About 1511 originated the first architectural w work of the Renaissance in Germany, the Fugger chapel near S. Anna in Augsburg. It is kept in pure Venetian early Renaissance, aside from the net vaults covering it, and it is assumed to have been erected by a master Hieronymus, trained in I Italy and practically employed in Venice. Thenceforth Augsburg was the earliest centre and starting point of the Renaissance in Germany. Its extension first occurred chiefly in works of the minor arts, indeed principally on altars and tombs.

From Augsburg Hans Holbein the Younger (1497-1543), the son of the one just mentioned, went to Basle already in the 18 th year of his life, three years later to Lucerne, and probably from there to Upper Italy. At least it is to be assumed with some certainty, that he visited Como and Milan. After his return, he was a zealous representative of the Renaissance, whose spirit he fully understood. But he treated it with entire freedom and gave it an entirely German character in regard to ornamentation. Likewise in this as in his numerous designs for facades, decorations and the art industries, the great painter showed himself a talented master in treatment of form,

to which German art can scarcely show a second. The Renaissance also took its further way from Basle, yet for the next time by the mediation of the minor arts.

First in the thirties originated the earliest larger architectural works of importance. In that time the Bavarian dukes commenced their extensive architectural activity. From 1536-1543 the royal palace at Landshut was erected by German and Italian masters. The wing toward the Altstadt was by the German masters Nicolaus Ueberreiter and Bernhard Zwitzel, and it was kept in the early German Renaissance. Likewise the p portico-like vestibule with the marble columns belongs to this style. The three other wings enclose an arcaded court with Doric columns and were built under the lead of a master A Antonelli from Mantua, a representative of the school of Sanmicheli. Not merely the court but also the rooms are very i impressive,and would merit consideration, even in Verona. The mediaeval castle of Trausnitz near Landsberg received about 1550 the so-called Italian building with simply treated pier arcades of wide span in the two upper stories of the court side. The magnificent interior decoration of the principal story consists of paintings of grotesques (Fig. 339), panelings and forms of ceilings in an expressed Italian character. But their execution followed later, mostly between 1576 and 1580.

Comparatively early Nuremberg took part in the new movement. There the house architecture of the citizen class reached greater and truly popular development. The plan of the house follows the type generally common in south Germany (page 279); they have small width of facade, but imposing height and are very deep. Splendidly ornamented bay windows and stately gables form the chief parts of the very simply treated facades. The courts are enclosed by arcades, on which Renaissance and mediaeval motives are combined in a charming and harmonious manner. On the Cloth Hall mediaeval and Renaissance motives are balanced; the windows recall the French early Renaissance. The Hirschvogel house of the same time is famous for its magnificent garden hall, designed in 1534 by Peter Flötner already in mature and noble Renaissance forms. The exterior has

a very pleasing subdivision into stories and a bold crowning cornice; the design appears to have been preceded by studies in upper Italy. On the much later four story Topler house (1590-1597), the keynote is still given by the mediaeval forms on bay windows, on the window forms and the gable. (Fig. 340). The Renaissance obtained a complete victory on the very famous facade of the Peller house (1605), but both in the details as well as in the general effect, Barocco ideas already notably appear. (Fig. 341; also page 290). On the city hall, begun 11 years later, all reminiscences of the middle ages have disappeared. The elongated facade (Fig. 342) rejected columns and pilasters, but obtained a great effect of t the powerful treatment of the portals and the window enclosures. The arcades in the two upper stories of the court have a subdivision by pilasters. The master, Jacob Wolff the Younger, had made studies in Italy, probably in Genoa.

A similar and purely citizens' art tendency, even if in smaller proportions, is found in the neighboring Rothenburg-o-T. There the marketplace with the stately city hall affords an entirely charming view of an old German city. The city hall was built in 1572 by a nuremberg master, the elder Jacob Wolff, father of the one previously mentioned. The long facade is broken by an octagonal stairway tower and before it is placed a rusticated arcade portico with a balcony. The isolated angle is accented by a high tower-like bay window. The architecture of the portico and of the portal in the gable end exhibits a certainty in handling Renaissance forms, scarcely found at that time in German masters.

In Munich about the end of the 16 th century, Friedrich Sustris and Peter Candid were engaged, who had been trained in Vasari's school and represented the Italian Renaissance in t the Netherlandish conception. They proved themselves important artists, who dominated the forms with sovereign mastery, and powerfully influenced their contemporaries. Their first important work is the church of S. Michael (1583-1597), a plan with a single aisle (Fig. 343) with transverse aisle and a long choir ending in polygonal shape, with three relatively small side chapels terminating in semicircular form, above t

them being galleries, without a dome, but with a very happy introduction of the light. The walls have double pilasters and a high attic; the tunnel vault is treated as a coffered stucco ceiling. The whole is nobly handled in the proportions and doderately decorated, and in its general effect is a grand internal creation. The design was by Sustris, although this cannot be proved without objections. Peter Candid passes for the architect of the impressive wings enclosing the Kaiser court of the royal palace, erected in 1611-1619 for Maximilian I. The exterior is plainly treated; the beautiful and rich portals of the year 1614 (Fig. 344) on the otherwise undivided western facade permit the recognition of a strong influence of the Italian Renaissance. In the interior the stairway design and the rooms of the principal story, by the grand and harmonious proportions and the noble treatment of the details, have a distinguished effect and a select and a truly princely magnificence. The Renaissance perhaps has in Germany no second work of equally perfect treatment to be mentioned.

Meantime Augsburg had entered into the times of the high a and late periods. In the year 1570 Jacob Fugger had called the Venetian Antonio Ponzano with other Italians to Augsburg and had a series of rooms in his palace decorated entirely in Italian style. * But the greatest work of Augsburg architecture was completed in the late period by a native master Elias Holl (1573-1646), the important city architect. Already in the 17 th year of his life, he came to Italy in his wander years, and a few years later he built in his native city the arsenal, that with its three story, richly treated facade crowned by a gable,already exhibits a complete mastery and s shows an entirely free creation with a visible influence of Palladian art. His chief work, the city hall (1614-1620) has a severely symmetrical plan. In the ground story a central three aisled hall extending the entire length of the building has about a third part of its width. From it on the transverse axis to the right and letf, stairways lead in two branches to the upper story, and indeed to the "Golden Hall" extending through three stories and located over the lower hall. In

the angles lie the "princes' chambers". The treatment is extremely magnificent and stately. Holl gave to his native city a grand appearance. Even his city gates exhibit a noble treatment, splendidly appropriate to their purpose.

* *The same master was also later (about 1586) employed on the Antiquarium at Munich and the grotto portico of the royal palace.*

In Swabia is to be mentioned a very early monument of the transition from Gothic to Renaissance, the octagonal spire of S. Kilrain at Heilbronn, erected in 1513-1529 by Hans Schweiner of Weinsburg. (Fig. 345). From 1579 to 1582 the old Gothic city hall there was rebuilt. Its longer side is turned toward the marketplace, and has a high flight of steps treated as an arched portico, and a grouped dormer gable above the main cornice at the middle. (Fig. 323). To the early Renaissance also belong further extensive new buildings added after 1537 to the castle at Tübingen, whose principal wing contains a great hall extended by a large balcony structure. The pompous and already strongly Barocco front portal building dates from the beginning of the 15 th century. In Stuttgart the o old chateau was erected after 1553, leaving an older wing of the building. As architect is mentioned Aberlin Tretsch. On the exterior by the earnest and undivided architectural masses and the strong round towers it still bears the character of a castle. The court of the chateau is surrounded by three story arched porticos, whose segmental arches are supported by very freely treated columns. (Fig. 321). Particular interest for the history of architecture is presented by the plan of the chapel as a narrow rectangular hall, which is extended on one of the two longer sides by a polygonal bay niche. (Page 281 and Fig. 324). This chapel is the earliest church building on German soil, whose plan is exclusively designed for the requirements of Protestant divine service. * A masterpiece of a rare kind, that strikingly indicates the increasing enjoyment of a more cheerful course of life in the age of the Renaissance, was the summer house (lusthaus) erected for duke Louis in 1575-1590 by his architect George Beer near the chateau, and which unfortunately was torn down in 1846. It had

a rectangular plan, an open arcade portico extending around it externally, interrupted at the angles by small and elegant round towers, and at the middle of the main facade by a high flight of steps, above which was a portico-like projection c crowned by a gable (Fig. 346), and stately gables on the side facades. The ground story contained a great promenade hall leading around great water basins, above it being a similar festal hall. For the works on the summer house under Beer, Heinrich Schickhardt (1558-1634) had also participated, who afterwards exerted a great activity in Wurtemberg as ducal c court architect. He in Italy had measured and drawn buildings by Palladio and Genoese palaces. It was allotted to him to not only build anew chateaus, churches, schools and the like, but also entire cities. (To him are attributed 12 chateaus, 17 churches and a great number of public and private buildings). He designed the plan of Freudenstadt in Swabia for the Protestants expelled from Austria, and erected there the church (1601-1608) according to a very original ground plan, when he arranged two wings of the building adjoining at a right angle, one of which was assigned to the men and the other to the women. His chief work was the magnificent Neue Bau (new building) in Stuttgart, later destroyed by fire.

* *The chapel of the chateau of Torgau dedicated by Luther in 1544 is indeed of earlier date, but in its ground plan as a rectangular hall with galleries placed around it and between the buttresses of the vaulting, was based on the external conditions of the building of the chateau.*

Of the half timber construction, which rose to high perfection in Swabia, nearly every city possesses splendid examples.

Among the monuments on the upper Rhine is the chancery building at Constance (1592), worthy of consideration for its picturesque court furnished with arched porticos of wide span b between round towers. In Basle the pleasing facade of the goldsmiths' guild hall (Geltenzunft) (1578) arranged in three orders suggests the study of the writings of Serlio. (Fig. 347). On the somewhat later Spieshof (1600) is employed the triple window motive of Palladio. Italian influences also a appear on the city hall at Mülhausen-i-E, well known for its

fresco paintings in which the painter (Christian Vacksterffen from Colmar) in the year 1552 imitated rusticated ashlar work in the lower story and an architecture of columns and niches in the upper one. In Strasburg Daniel Specklin (1536-1589), a much traveled fortification architect, designed about 1585 the facade of the old city hall as an entirely regular plan with pilaster subdivision in the stories graduated in height. The portal and pilaster architecture approximates the Italian form treatment; the general appearance, particularly the treatment of the windows and the roof, bears the architectural character of southwest Germany. The Frauen (women's) house erected on the Münster place in 1581 belongs to the most notable half timber works in southern Germany. The internal treatment of certain rooms (Fig. 348) allows the recognition of the predominance of an architectural spirit with the aim of a grand and comprehensive use of the architectural members in favor of a unified effect. The chateau at Baden, begun in 1 1569 by Caspar Weinhart, is noteworthy, in that in the arrangement of the ground plan care is already thoroughly taken f for convenience, when the rooms are connected with a corridor extending through the middle of the building. On the somebeat later chateau Gottesau near Carlsruhe (1588-1594) with round towers covered by domes, built by a Strasburg master, Paul Maurer, French influences made themselves felt by the mediation of the margrave Ernst Friedrich. (Fig. 349). In Heidelberg the house zum Ritter (of the knight), built in 1592 by Charles Belier, merits consideration on account of its rich facade, characterized by colonnades and two bay windows. The principal work of south German, and of the German Renaissance in general, is the grand chateau romantically enthroned above the city. It consists of several buildings grouped around an irregular court approximating a square in its general form, and that date from different times. The towers on the hillside, certain lines of walls and parts of the structures still belong to the 15 th century. The earliest building dating f from the Renaissance period is the "Glass Hall Building", erected about 1550 by Jacob Heidern. Of the former facade only about a half with the loggias extending through three stories

now remains; but even this small portion is an extremely picturesque part of the interesting court of the chateau. In the years 1556-1563 was erected the Otto-Heinrich building, adjoining at a right angle. The famous facade is built in t three stories above a high base. It has a well considered subdivision by Ionic rusticated pilasters in the lower story (above which is a Doric triglyph frieze), Corinthian pilasters in the second and Corinthian columns in the third story. (Fig. 350). The influence of the Italian Renaissance cannot be denied, and particularly of the writings of Serlio. Yet the composition is entirely independent and entirely of German character. The master is not to be named with certainty. It is assumed that the design was by an otherwise unknown artist, the Netherlandish sculptur Anthony. Another Netherlandish master, Alexander Colins, took part in the execution, who is to be regarded as a successor of Anthony. From 1601-1607 beside the hall building was erected the imposing and very m monumental Friedrich building by the Strasburg master Hans Schoch. For the facades (Fig. 351) the master adopted the system of the Otto Heinrich building, yet developed them with a freer and substantially maturer treatment of form. With the energetic accenting of the structural framework, luxuriant rolled work and cartouche ornament, as well as the rich f figure decoration designed by Sebastian Götz from Chur, is combined into a harmonious whole of rare worth. We have in the two facades of the Friedrich building an extremely interesting and powerful expression of the German art spirit.

In German Switzerland the close relations with Italy were also effective in architecture. But the German conception gives the keynote in the plan and the treatment of the facade as well as in the stone construction. In Lucerne Giovanni L Linzo erected after 1557 the Ritter's palace (now government building) with beautiful portico court. The city hall there was begun in 1601 and adheres more closely to northern art. Zurich has some interesting guild houses. Likewise in artistic dwellings meriting consideration, Switzerland has a large number to exhibit. Yet it lacks the larger chateaus. The Stockalper palace in Brieg (upper Wallis) of 1611-1617 consists of two tall and massive structures connected by a loggia

and an arcaded court protected by three defiant square towers, but it can more properly pass as a private house arranged in the grand style.

In Austria the prevailing northern art character, by the v vicinity of Italy and by the mixture of races already inclined in conception to the southern art feeling in plan and form treatment, experienced a refining, which is particularly to be recognized in the endeavor for clarity and simplicity with dignified and carefully weighed treatment of details. In the southwest provinces and especially in the Tyrol is commonly found the motive of open arcades ("pergolas") derived from t the antique, which surround the marketplaces and are frequently continued along both sides of the adjoining streets. In the late Renaissance there, as well as in southern Bavaria, occurs the horizontal termination of the facades instead of the high gable. On the other hand the preference for the bay window, mostly beginning at the ground and extending through all the upper stories, preserves the German character. Among the Tyrolese nobles' seats the restorations and new structures at chateau Ambras (after 1563) take a prominent place, and were erected by the archduke Ferdinand for his wife, Philippine Welser. The facades are adorned by architectural and figure representations, partly in sgraffito and partly painted in fresco. Besides other splendidly treated rooms, the interior contains the great Spanish hall 141.1 × 32.8 ft. (Fig. 352) with very tasteful architectural enclosures around the windows and the portraits of Tyrolese princes and a rich wooden ceiling. The externally tasteless chateau of Velthurns near Brixen (1577-1586) contains in its prince's apartments internal decorations, particularly door enclosures, wall panelings and wooden ceilings, that belong to the best works of the Renaissance. In Salzburg the bishop's palace was begun in 1592 and was built in an expressed Italian style, and likewise the cathedral (1614-1634), in which Santino Solari from Como, a pupil of Scamozzi, employed the ground form of S. Peter's in a free manner. The capital of the Steiermark, Graz, has in the Country hous (Landhaus) a noble building of the year 1560 (Fig. 353) kept in the severe forms of the Italian

high Renaissance. In the archduchy of Austria between 1530 and 1600 extensive new buildings were erected on the Schallaburg near Mölk with a beautiful arcade court, where each two upper openings correspond to one opening in the lower story. The columns are of marble, and the rich relief accessories of the upper gallery are mostly of terra cotta. There are indeed expressed here influences of the upper Italian style of architecture, as on the arcade court of the chateau of Rosenburg near Eggendorf (after 1593), in which the splendid statues are likewise made of terra cotta. At the court of Ferdinand at Prague already from the thirties of the 16 th century, an Italian artist colony was in the service of the monarch. The summer house or Belvedere on the Hradschin was built by Paolo della Stella, and it is a rectangular structure surrounded by an airy arched portico on slender Ionic columns, that recalls the basilica at Vicenza. Scamozzi was also employed in Prague. The stairway of the Hofburg is attributed to him. The noble garden portico of palace Wallenstein (1629), opening by three arches on doubled columns, admits the suggestion of Genoese models. As architect Giovanni Marini is generally named. I might concur in the assumption of Gurlitt, who declares it to be a work of Bartolommeo Bianco (page 234). The mausoleum of archduke Ferdinand II, erected 1614-1622, is a genuine product of the early Italian Barocco style. Into Hungary the Renaissance quite early found entrance under the favor of king Matthias Corvinus (1458-1490), who is to be counted among the greatest admirers of the Italian Renaissance. (To the influence of Hungary seems to be due the early penetration of Renaissance forms into Silesia). Besides the Siebenburg chateau of Kronstadt and some noteworthy chateaus of
310 the nobles, the Renaissance produced important citizens' houses with court arcades in several cities, particularly in Kesmark, Leutschau and S. Georgenburg.

In middle Germany, Saxony and Silesia take precedence. There comparatively early a true architectural school was developed, which received its impulses manifestly from the Lombard Renaissance, especially from that tendency which proceeded f from the Certosa near Pavia, and is chiefly characterized in

the rich ornamental work in the pilaster panels, on the archivolts, friezes and arch spandrels, as well as in figure decoration by statues, busts and heads in medallions. The monuments adhere closely in part to the Italian principles of composition; in part they retain the late Gothic basal lines as well as many details (particularly the curtain arches in the windows; page 96), and they employ the Renaissance forms for portals, bay windows and gables. To the latter kind belongs the George building of the palace at Dresden (after 1530), b built by Hans Schickentanz, from which still remains the rich George gate (the forger portal on the Elbe side). (Fig. 354).* The main structure of the palace was erected after 1547 by Caspar Voigt of Wierandt. On it were also employed Italian workmen. Of the design of that time is now preserved scarcely more than the impressive court with the stately stairway towers and the open portico in the middle of the north side. With the more important works of the Saxon early Renaissance is counted the eastern wing of castle Hartenfels near Torgau, built by Conrad Krebs in 1533-1535. Before the court facade is placed a flight of steps and a stairway tower, in which a boldly constructed and splendidly treated winding stairway, recalls much of that of the chateau at Blois, and leads to t the upper story. (Page 304**). The real showpiece of Saxon=Silesian early Renaissance is the portal building of the Piasten chateau at Brieg (Fig. 355), dating from 1552. Italian artists worked on this. But from its entire composition the design is to be ascribed to a German master. That likewise the private architecture in this domain zealously participated in the development of the Renaissance may be seen by the numerous and in great part very beautiful portals, which have remained from the splendid building period of the Saxon and Silesian countries. About 1560 commenced for them also the high Renaissance, and thenceforth they yielded preeminence to western and northern Germany.

Compare the George gate with the portal of the cathedral at Como represented by Fig. 212.

** *See page 304.*

In Franconia After 1554 originated the Plassenburg built by margrave George Friedrich of Brandenburg, a regular plan with

four towers. The so-called "beautiful court" is surrounded by very richly ornamented pier arcades in two stories above an undivided or rusticated story. Schweinfurt has in its city hall, erected in 1570 by Julius Hofmann from Halle, an earnest and well subdivided building, which is worthy to stand beside the best works of its kind. The bishops' cities in general are centres of great activity in art. In Würzburg t the powerful and architecture-loving prince bishop Julius Echter of Mespelbrunn had the university built in 1582-1591 by the architect H. Kahl as an impressive design, grouped around a nearly square court, on whose southern side stands the university church. This is a three aisled building with galleries arranged after the style of the chateau chapels. Before the piers are placed three-quarter columns in the well known sequence. Among the Würzburg houses of the Renaissance period, there merits consideration the picturesque Sandhof, that originated about 1616, the residence of the old patrician family of Sandhof (Fig. 356). The grandest work of the Franconian late Renaissance is the chateau at Aschaffenburg, erected by the Strasburg master George Riedinger in 1605-1614 for archbishop Johann Schweikard. It has a symmetrical ground plan, indeed produced under French influences, consisting of four wings enclosing a square court, with four massive square towers at the external angles and four smaller stairway towers at the angles of the court. An older tower was included in the rear wing. The facades have merely a horizontal division by bold cornices. The window enclosures already permit the recognition of strong Barocco tendencies. The building has an imposing monumental effect. In Mentz the south wing of t the prince elector's palace, begun in 1627, has a very clear subdivision by three correctly arranged pilaster orders. The decorations on the lower third of the shafts and the other r rich ornamental accessories have the character of the German rolled work. The architectural details and particularly the window forms were manifestly influenced by French models. On the lower Rhine, where the country shows so much similarity to the Netherlands in regard to climatic and living conditions, and where also an active commerce with them had commen-

commenced at a very early time, the architecture is in close connection with the Netherlands. We find here as there chiefly narrow houses, mostly with three windows and stepped gables. The magnificent portico of the city hall at Cologne (1569-1571) was indded by a native master, Wilhelm Vernicke (Vernickel), but as its creator himself admits, it was designed not without the influence of the Belgian school. The proud structure is arranged in very noble proportions and is d distinguished by columns (Fig. 357); it opens in five arches on the facade and two at the side; it has strikingly pure and entirely Italian early Renaissance forms. The Jesuit church at Cologne (1618-1622), probably under the influence of the cathedral, is still chiefly arranged in Gothic as a basilica with slender round pillars and galleries. The net vaults rest on graceful corbels. The architectural details have the character of the late Renaissance, the ornament that of the gristle style, of which it presents one of the earliest examples. In Düsseldorf the church of S. Andreas was built in 1622-1629 as a three aisled hall church and richly decorated.

North Germany has an architectural region in the internal northwest provinces (in the country of Münster, Hanover, Brunswick, Halberstadt, Hildesheim and Hameln), in which the citizens' art was very richly developed, both in stone as well as in wooden construction. The impulses come from the Netherlands in relation to the arrangement of the ground plan (page 279) and the architecture; still the structures exhibit a strong individuality. Here belongs the Rat-catcher's house (Rattenfänger) at Hameln with a high and fancifully bordered gable and luxuriant ornamentation, consisting of decorated ashlars, frequently in chessboard patterns. In Münster the buildings on the architecturally very interesting marketplace mostly have galleries. On the best Renaissance work there, The Stadtwein (city wine) house (about 1615), they are omitted. The Krameramts (merchants' office) house adheres closely to the Netherlandish Renaissance. In Hanover the stately Leibnitz house (1652) strives for a severe organism with regular distribution of the axes. The rich bay window rises from the ground and is a show piece of the Renaissance. In Brunswick on the beautiful Cloth (*ewand) house (1590) by Magnus

Klinge and Balzer Kircner, the antioue forms with a surprisi-
ng feeling for rhythmic proportions is applied to the low st-
ories of the mediaeval structure. A choice show piece of th-
is kind is the house in the Hohestrasse at Minden (Fig. 358),
distinguished by the richness of its columns. In Paderborn
the quite symmetrically arranged city hall (after 1612) has
two projections from the main gable end at both angles over
open arches with a continuous series of windows in the upper
story and ornamental galleries. In Münden the dry and bold
facade of the city hall (1605) has a predominating Netherlan-
dish architecture on the three gables set side by side, but
otherwise an entirely German character. In Wolfenbüttel Paul
Franke (1538-1615), an important and freely creating artist,
built the beautiful church of S. Maria (after 1608, first com-
pleted in 1660), which exhibits grand proportions as a three
aisled hall church of imposing internal effect. The details
of the gables arranged beside each other above the side aisl-
es are already given up to a wild gristle style (Fig. 359).
His university at Helmstadt (near Brunswick; 1592-1597) is a
rectangular building of two high stories, staircase tower, h
high gables above the narrow facades and three dormer gables
over each longer side, in strong composition and rich treatm-
ent. Also the City church at Bückeburg (1615), as whose arc-
hitect is named Adriaen de Vries, contains an imposing three
aisled hall interior, covered by cross vaults on Composite
columns (Fig. 360), with well weighed and expressive decorat-
ion. The facade goes strongly into Barocco and lacks the ch-
aracter of a church.

In the north German lowlands and the coast provinces Bremen
occupies a separate position. To the old city hall there Lü-
der von Bentheim (after 1609) gave a new facade, before which
is an arcade portico on Tuscan columns extending the entire
width, and a projection rising majestically over its centre,
crowned by a stately gable, flanked by two receding dormer g
gables. The whole exhibits a strong Renaissance architecture
with rich sculptured and ornamental decoration, already pass-
ing into Barocco. Likewise the interior, particularly the s
stairs, the corridor in the upper story and the halls are hap-
pily composed and splendidly decorated. On the narrow and h

high Essig house, built about 1618, much of the clarity and
ornamental effect is lost by the lavish overlaid and rolled
ornament dryly and obtrusively spread over all surfaces of
the facade. (Fig. 361). The city hall at Emden (1574-1576)
in the extreme northwest by Marten Arens of Delft was erect-
ed entirely in the Netherlandish style. At Lübeck the Gothic
city hall received in 1570 an arched portico with upper story
and gable placed before the facade, in the year 1594 on the
east side a very rich and nobly treated flight of steps, and
in 1586 an already somewhat dryer bay window. The form treat-
ment indeed accepted Netherlandish influences but still reta-
ined a certain individuality. From Lübeck spread about the
middle of the 16 th century a peculiar terra cotta architect-
ure. Portal and window enclosures, horizontal and inclined
friezes, figure medallions, also bases, capitals and cornices
were made of terra cotta. The predominating style is that i
of the Netherlandish early Renaissance. The basis of the or-
nament is formed by broad, dry acanthus leaves and the trefo-
il with stem, whose point is cut out in semicircular form.
The chief domain of this architecture is Mecklenburg, and the
principal building is the "Furstenhof" (prince's court) at W
Wismar (1553-1554). The broadly developed facade with the r
richly enclosed triple windows is subdivided by two high par-
apet figure friezes and on the court side also by pilasters
in the two upper stories. The entire conception, that produ-
ces such a quiet monumental effect, as well as the details of
the architectural treatment, also especially the portals (Fig.
362), permit the assumption of influences from upper Italy.
The great chateau of Güstrow in Mecklenburg, built in 1558-1
1565 by Franciscus Parr, by its grand plan of pavilions, tow-
16 and gables recalls the chateaus of the French Renaissance.
In Berlin Caspar Theiss, a pupil of the architect of the cha-
teau of Torgau, built the electoral palace (after 1538), of
which but few remains exist. To the city hall at Posen Batt-
ista di Quadro in the years 1550-1552 added a noble three st-
ory facade,opening in continuous loggias, to the structure c
commenced in Gothic. An entire series of important buildings
is shown by Danzig. They adhere closely to the Netherlandish

art and chiefly have Netherlandish masters as their originators. The most important monument is the arsenal, designed in 1600 by Anton van Obbergen from Mechlin, and substantially c completed in 1604. It is a rectangular two story structure with sandstone construction at the portals, the window enclosures and the eapriciously curved gables (Fig. 363). What wealth was at command here is evident, since partial gilding was applied to the cut stones. In the later works also appears the classical tendency of the Netherlandish Renaissance.

Likewise en adjacent Poland the Renaissance had already found entrance to the splendor-loving royal court of the Jagellons at the beginning of the 15 th century, and had been favored by the family relations of the princely house with Italy; splendid works were produced, whose execution was almost exclusively under the charge of Italians. The Jagellon chapel at the cathedral of Cracow ts perhaps the most magnificent work of the Italian Renaissance north of the Alps.

In Germany the architectural activity also continued during the first half of the thirty years' war until about 1630. 0 Only in the second part of this occurred those miserable conditions, which had an unequaled national weakness and poverty as a result, and the artistic energies of the citizen class, that took the lead in art during the age of the Renaissance, and hpad developed such varied and luxuriant prosperity, were entirely crippled. After the war a new period in architecture
317 re also commenced in Germany,as well as in the other arts; then began the supremacy of the international Barocco style, chiefly supported by the eadeavors of absolute princes.

3. Denmark.

After the so-called union of Colmar (1397), Denmark exercised supremacy over the three Scandinavian kingdoms of Denmark, Sweden and Norway, but lost this over Sweden under Christian II (1503-1523), which then entirely freed itself from Denmark. Violent tumults in the interior and unfortunate external complications, especially by means of wars with Sweden, in the 16 th century hindered the free and independent development of Denmark. Under the long reign of its brave and energetic king Christian IV (1596-1648) occurred a national advance, w

which was also expressed in art. In the second half of the 17 th century this continued under the favoring influence of the gradually appearing political quiet. But first in the 18 th century (after 1730) a longer period of peace was assigned to the country, in which by the practice of agriculture, commerce and manufactures, it developed into comfort and well-being.

The Renaissance entered Denmark comparatively late. It was at first based chiefly on German influences, but later was in almost entire dependence upon Netherlandish art, which indeed in part directly penetrated, partly by the mediation of the north German coast lands. Under the art-loving king Christian IV, the Renaissance style developed in a manner characterizing the Danish individuality. It adopted the grand lines of the Netherlandish, but worked in its own way. Characteristic for it is an excellent grouping of the architectural masses with a somewhat repressed architectural subdivision and the adoption of early Renaissance motives and decorations. The Danish Renaissance merits our consideration; for in its works it brings out their architectural purpose with particularly clear expression.

The first important work is the chateau of Kronborg near Helsingör (1574-1585), a massive ashlar structure with great undivided wall surfaces, grouped around a square court, with few but relatively large windows divided by mullions, rich and low roof cornices and capriciously curved gables. The form treatment is expressly German, and in any case without direct adherence to Netherlandish models. The most important monument is the chateau of Fredericksborg, erected by Christian IV in 1602-1625. It lies on three islands connected by bridges, the first of which contains the external forecourt with the housekeeping buildings, the second the lower court flanked by two story government structures. On the third island lies the main building composed of three wings, which enclose the court of honor on three sides. (Fig. 364). The court design makes an imposing and harmonious impression by the well weighed proportions, the great tower, the small stairway towers, by the open two story arcade porticos on the rear wing,

and by the harmonious treatment of the whole and the details. The portals and the arcades exhibit a rich and strong architecture. (Fig. 365). Besides the other rooms in the interior, particularly the Ritter halland the chapel are magnificently handled in the style of the mature northern Renaissance. The creator of the design is unknown. It is assumed that the king himself furnished the basal ideas. In the erection the y younger Hans von Steenwinkel and also probably the Netherlander Anton van Obbergen, employed in Danzig, took part. Somewhat later was erected in the same style the considerably smaller but lofty chateau of Rosenborg in Copenhagen (1610-1623). G Christian IV directly busied himself with its design. It consists of a rectangular wing with bay windows and gables on t the ends, a small polygonal stairway tower, at the sides two slender square towers on the facade (Fig. 366), and a massive principal tower in the middle of the rear side. The interior of the building, for which the king always exhibited a preference, was comfortably equipped, but later was much changed. To the same time belongs the Exchange (Bourse) in Copenhagen (after 1610), erected at the harbor by Hans von Steenwinkel the Younger. It is an elongated two story pavilion with a s subdivision of the facade by hermes, impressive portals and gables on the front and an animated outline of the roof, produced by the roof gables set along the main facade and the w wonderfully shaped spire of the tower in the form of four dragons' tails twisted together. The interior originally had two long corridors along which were arranged sale booths on both sides. The most mature work of Steenwinkel is the tomb chapel at the cathedral of Roeskilde (1617), impressive both externally and internally. To church architecture was directly transferred the style of the chateau architecture. Therefore they mostly appear as slightly developed organic creations; also they make the impression of a rather timid freedom from the Gothic. The chief work of Danish church architectue is the Trinity church, founded in 1637 iy Copennagen by Christian IV. It is an externally heavy but internally earyest a and grand hall building with still entirely Gothic ceiling v vaults. Over the interior of the church is found a great li-

library hall. The remarkable round tower terminating in a p platform was intended for astronomical observations (it inclu- des a comfortable ascending helical ramp, wide enough to dri- ve up a carriage with four horses. * Among the works of the citizens' architecture the first place is taken by the so-cal- led "Dyvekes house" in Copenhagen, built in 1616 by the burg- omaster Hansen. It is a three story structure with two gabl- es rising beside each other over the longer facade, kept in the Netherlandish style, yet not without reminiscences of Ger- man art, particularly of the arsenal in Danzig.

** To the monuments of Danish church architecture, strictly speaking, also belongs the Trinity church at Kristianstad.((Page 324: Fig. 369).*

Soon after the middle of the 17 th century followed the tr- ansition of the Danish Renaissance to the Barocco style.

In Norway, that remained united to Denmark until the year 1814, and this time was dependent on Denmark in language and literature as well as in art. The primary conditions were w wanting for a further spread of the massive construction chi- efly coming in consideration for the Renaissance. As a natu- ral stone, chiefly granite difficult to work was at command; the making of bricks was limited to the smaller region of the south. Consequently Norway scarcely advanced beyond the anc- ient native wooden architecture, that grew up with the people on the soil. Indeed the Renaissance also there influenced t the structural framework and the ornamental details. But im- portant monuments cannot be indicated.

32. 4. Sweden.

With the declaration of its independence from Denmark and the restoration of the national by Gustavus Vasa (1523), Swe- den entered on an unexpected advance, which brought to it a very important position among European nations, and the impor- tance of a northern great power by the participation of Gust- avus Adolphus (1611-1632) in the thirty years' war. The Vasa period -- Gustavus Vasa and his immediate successors Eric XIV (1560-1568) and Johann II (died 1592) showed themselves to be zealous patrons of art -- so magnificent for the political de- velopment of the kingdom, was especially favorable for the f flourishing of architecture,and thereby for the entrance of

the Renaissance. In its course may be distinguished two divisions, the early period till 1600 and the late period until 1650. The former corresponds in the history of development to the early Renaissance, the latter to the high Renaissance.*

* *The Swedish late Renaissance falls in the period of the Barocco and Rococo styles. We shal therefore treat it in the succeeding chapter.(Volume 3).*

The formation of the style was thus substantially completed as in the other German countries. At least on the more important monuments, architecture was chiefly practiced by foreigners, indeed by Netherlanders and Germans; therefore is determinative sometimes the Netherlandish,and sometimes the German influence. In general the Swedish Renaissance adheres more closely to the German than the Danish. In the early Vasa pe- (1523-1600) the mediaeval mode of thought still predominated. On the few churches Gothic forms were still employed in details. The great chateaus of the royal family and of the high nobility were mostly composed of several wings, that were grouped around an open court with round or square towers at the angles. Until the end of the 16 th century the exterior was enclosed like a fortress; the wall surfaces remained undivided and the chief weight was laid on solid bonding. The design of the windows was still irregular. In the arrangement of the rooms and stairways little attention was paid to convenience. The Renaissance was chiefly employed on details, on t the portals, gables and on the decoration. The country seats of the nobility in the 16 th century were principally structural groups like great farmsteads and enclosed by palisades or hedges. If they were treated as permanent dwellings, they mostly had a modest extent in the form of high rectangular stone structures without external subdivision. Only the portals and gables sometimes received an architectural treatment. The citizens' dwellings in the cities were narrow houses with three or four windows in front, simple portals and stepped or curved gables in the style of the Netherlandish-German Renaissance. In the decorative motives was preferred the German so= called Aldegrever ornament with the long-stemmed trefoil leaves. (Page 276). The later Vasa period (1600-1650) brings a decided endeavor for regularity of the plan of the building

and an appropriate and convenient arrangement of rooms. On the other hand the care in the treatment of details is diminished. The details ever more fall into a certain dryness and tastelessness, probably partly due to overproduction. Likewise in this period the chief attention is devoted to the portals and gables. About the end of the 17 th century became perceptible numerous Barocco tendencies in the general design as well as in the architecture and decoration, besides classistic attempts in the sense of the Netherlandish conceptions. The latter attained full supremacy first in the second half of this century.

Among the monuments of the early Vasa period, the chateau of Gripsholm is the first important work. (Södermanland; 1537-1596). It still has the irregular plan of a mediaeval castle with two courts, strong towers and undivided walls of red brickwork. The water chateau of Wadstena (after 1535) has an entirely symmetrical plan as an unusually elongated narrow r rectangle, whose front side is protected by low and massive round towers as bastions. From about 1560 onward the chateau of Kalmar, dating from the middle ages, was changed into a m modern fortress by extensive new structures. The buildings forming its nucleus are picturesquely grouped around an irregular court with round or polygonal angle towers. The wall surfaces are undivided up to the gables. Strongly projecting bulwarks emphasize the firtress character. (Fig. 367). The portals exhibit the predominant style of the developed German Renaissance, yet have a remarkably distinguished and classical expression. Entirely classical is the beautiful fountain in the court (about 1580), which closely adheres to the late Renaissance of upper Italy. * In the interior is the striking apartment of king Eric XIV, it has a monumental tendency and is very well preserved in its former condition. (Fig. 368). It has a strong subdivision of the walls by Corinthian three=quarter columns with heavy cornice and a magnificent ceiling, properly harmonized therewith in its ornamentation.

** In the library of king Eric XIV was found an edition of Vitruvius' works, besides other books on the literature of art.*

To the later Vasa period belongs chateau Wibyholm (completed

1626), whose three wings are grouped around a court. The architecture shows a mixture of the Netherlandish brick style with German forms. Chateau Jacobsdahl (1644) has a wide court, open in front. The main building is subdivided by a colossal pilaster order in the Dutch style. The general design and architecture exhibits numerous Barocco tendencies. Among the private buildings the Petersen house at Stockholm, built before the middle of the 17 th century, still has a facade developed to the width of a palace with seven window axes and four stories (the uppermost treated as a half story), and graceful portal and gable architecture in the style of the Netherlandish Renaissance. The same character is borne by a group of narrow and high houses standing on the great marketplace, which already exhibit Barocco reminiscences in the treatment of the portal and the gable.

Church architecture in the first Vasa period is best represented by the church of S. Jacob in Stockholm (after 1588), a still entirely Gothic plan with three stories and six bays in the nave and star vaults. Only on the portals and the gables, which are treated like the gables of palaces and houses, is expressed the Renaissance. The most important church building of the second Vasa period is the Trinity church at Kristianstad, begun in 1618 by king Christian IV of Denmark at a t- time, when the city was still Danish. It consists of a rectangular and wide three aisled nave, which at the middle is enlarged at both sides by an addition like a transept. Two rows of five in each of high and unusually slender octagonal granite piers support transverse arches, on which rest ribbed cross vaults in the Gothic style. The exterior bears the character of the Danish Renaissance by the combination of red bricks with cut stone, by the ashlar angles and bands, and t the seven volute gables, treated just like those on houses. (Fig. 369). The architect is unknown. Indeed there also the architecture-loving and art-loving king determined the dominating lines of the design. The Riddarsholm church at Stockholm, transformed from an old Franciscan church and extended by the addition of an entire series of tomb chapels, chiefly possesses importance as the resting place of the Swedish kings (Gustavus Adolphus and others), as well as of the great of the country.

V. RENAISSANCE ARCHITECTURE IN ENGLAND.

A. Historical Development and Style.

England entered the period of the Renaissance under the House of Tudor (1485-1603). The last queen of that House, Elisabeth (1558-1603), increased the prosperity of the country by economical rule and effective administration of justice, strengthened the sea power, founded colonies in North America and the East Indies, and laid the foundation for the later position of the British monarchy as a great power. Under her successor, James I, king of Scotland (1603-1625), the three British kingdoms of England, Scotland and Ireland were united in a national union. In spite of the violent internal disturbances, chiefly owing to religion and the rising of the people against the reduction of their rights, and the several foreign wars against Holland, Spain and France, the prosperity continued in the entire 17 th century. In the 18 th century England, in consequence of its fortunate internal and external politics, rose to that position as a world power dominating all the oceans, which it has maintained to the present day.

As the political history of England was carried on quite independently, thanks to its favorable geographical location, the individuality of its national character and its prominent colonial activity, so likewise the art history took an independent development. At a time in which humanism, Renaissance and reformation in other countries had produced an almost complete break with the past, in England the sound conservative sense of the people with the tough force innate within it long adhered to mediaeval traditions. First in the second half of the 16 th century, under the reign of queen Elisabeth, was continued the mighty movement already brought a century earlier from Italy across the channel. The general conditions t there were especially favorable for the acceptance of new intellectual and artistic ideas. The concentration of the commerce of the world on the English coasts and the development of the capital at London as a European market wrought a transformation in the economic and social conditions. The tales of the wealth of the new world fostered not only an adventurous spirit to the utmost, they also contributed to an easy a

and lavish tendency of life. The England of queen Elisabeth was inferior in the enjoyment of life to no other country. Her age was one of the most splendid in England's political history. The victorious contest with Spain, then the greatest power, had produced an elevated feeling of joy in the national existence, to which its poet Shakespeare (1564-1616) g gave eloquent expression. In his works appeared the signs of the time, in the South and also here, mighty passions and afflictions in superhuman strength.

Of all the arts, architecture in England was most closely connected with the people and the occurrences of their lives. From the great economic and national elevation and the changed intellectual tendency, it received the strongest icpulses. The rich merchants developed the idea of home comfort in the satisfaction of their increased requirements for their dwellings in regard to their location, number, size, arrangement and treatment of the rooms. The cities received a changed a appearance. The rule of the citizen class already became evident in their architectural style. The nobility lost its warlike and defiant character. At their castles the earlier and often gloomy rooms arranged for attack and defense now gave place to light and splendid porticos. For the seats of the nobles, as for the royal court, the endeavor for comfort and refinement of the entire life was determinative.

The Renaissance forms occasionally appeared already before the middle of the 16 th century, but first during the reign of queen Elisabeth were generally accepted. She indeed gave but unimportant architectural commissions (gallery in Windsor), but supplied the nobility with animated impulses for the erection of palaces and country seats. The advancement of the Renaissance was based more on foreign influences and theoretical studies, than on an innate art sense. Already Holbein the Younger (page 298) contributed on his first journey to E England (1526) and later during his permanent stay there (after 1532) much to the knowledge of the new style and to its extension. In the year 1563 an Englishman, John Shute, after having been in Italy, published the first English work on the columnar orders; later the writings of Philibert de l'Orme were also translated into English.

As in all northern countries, the Renaissance elements first appeared as added ornamental forms, without substantially changing the mediaeval system of construction. Thus originated a picturesque and very charming mixture of the Renaissance with the Tudor style, in which the mediaeval motives were gradually suppressed, while those of the Renaissance experienced an increasing refinement. Under James I (1603-1625) the treatment of forms was already tolerably pure, even if the mediaeval mode still reacted. But under his successor Charles I (1625-1649) the Renaissance predominated in its entire purity. The art-loving king maintained intimate relations with two Dutch painters, Rubens and Vandyke, even collected art treasures, and was inclined to Romanism as in his political and religious opinions, so that the Renaissance found in him a zealous patron. In the second half of the 17 th century (after 1665) appeared a strong theoretical tendency in English architecture, that continued until the beginning of Neoclassicism (middle of the 18 th century).

Accordingly three periods are to be distinguished in the evolution of the English Renaissance, the early Renaissance of about 1560-1625 -- the English subdivide this period into two sections, those of the Elisabethan and of the Jacobean styles * -- the high Renaissance from 1625 to 1665, and the late Renaissance from 1665 to 1750. The latter period falls entirely in the time of the Barocco and Rococo styles.

* *In England after the French example, from the beginning of the Renaissance the distinct style tendencies of English architecture were named after the monarchs then reigning.*

In regard to the treatment of the style, the early Renaissance is particularly interesting, since it bears an independent and entirely national character. It is most clearly expressed on the palaces and the country seats of the nobility. The English country seat preserves the national tradition and thereby differs as much from the Italian palaces as from the French chateaus. It was located in the green landscape as if it had grown there, so that it might afford as many and as charming views of the park as possible. Men therefore arranged, in order to also provide side windows for the more impo-

important rooms, several projections and recessions in the ground plan, without taking thorough care for the development of a facade in a plane, and chiefly sought to obtain picturesque effects. On these principles could be developed no fixed architectural system. For the extensive structures the ground plan generally shows an arrangement of three wings of the building in the form of a Latin H. Great and well lighted entrance halls, spacious and richly treated stairways (Fig. 370), long and wide galleries are the rooms preferred by location and treatment. Around them are grouped the proper living apartments and the subordinate rooms. The stairs were c generally constructed of wood; they have richly carved railings. In the living rooms (Fig. 371) the colossal mantle forms the principal object of the decoration and not seldom extends from floor to ceiling. The bay windows and walls were preferably covered by finely treated wooden paneling, frequently for the entire height of the walls. For the ceiling in a striking way wooden construction was but seldom chosen; stucco was preferred, indeed as an innovation on the former mode of treatment, and to which was given a subdivision into small panels by curved projecting mouldings, with rosettes a and sometimes even hanging pendants (in imitation of the late Gothic pendants) at the intersections of the bands. On the exterior the characteristic marks consist of porticos with columns and richly treated heraldic ornamentation, later in several storied and portal structures rising like towers with columns set in pairs (Fig. 373), very large windows divided by several mullions and cross bars, the bay window with m mullions, perforated balustrades, simple narrow curved gables, behind them being concealed the roofs, bay and bell turrets, and numerous strongly accented chimneys, mostly in the form of columns (Fig. 372). In the details is found a bold combination of inorganic forms (Tudor and pointed windows are not seldom flanked by Renaissance pilasters, classical window enclosures cling beneath Gothic gables; yet a certain unity cannot be denied to the whole, so that a tasteful effect is produced. After the forms of details had also become clarified and complete purity had been won (about 1600), the Gothic still influenced the arrangement of the members and the extended

proportions (Figs. 373, 376). The amount of stone and stucco decoration at first seems to have been chiefly foliage in the hollows and friezes, and it is very similar in modeling to that of the French Renaissance of Francis I; later it passes into the style of the German overlaid and rolled work.

The chateaus mostly rise from great terraces, from which s steps lead down into the lower ornamental gardens, laid out in the Italian taste, which in their turn were again enclosed from the external park by fine ornamental grilles. Besides stone construction in the English early Renaissance wood construction also was highly developed. Not only in the country but also in the cities are preserved a great number of charming monuments, thanks to the durability of the materials (mostly walnut or oak). On the houses the greater part of the surface of the facade is occupied by windows, frequently so much so that the front walls appear to be constructed of wooden framework with glass panels. The country seats as a rule do not exceed two stories. But in the cities the wooden houses have several stories projecting beyond each other with bay windows and steep gables. The effect is based on the proportions of the openings to the wall surfaces, and in these on the alternation of woodwork and plastered surfaces. Characteristic is the parallel portions of the vertical posts and of the oblique ties, repeated with such narrow intervals, that only a narrow strip of wall lies between them, about the width of the timbers. Otherwise the chief decoration is formed by crossed circular and quatrefoil cut timbers (page 88; Fig. 374). Surface ornaments likewisi occur generally, but actual works of the sculptor are rare.

The Elisabethan style also continued under the reign of James I (1603-1625), indeed with increasing refinement. With the end of the first quarter of the 17 th century, the style matured into the high Renaissance. The Italian series of forms was adopted with all its consequences, under the lead of a great master trained in Italy, indeed in the conception represented by Palladio. Thus arose on English soil buildings, which charm us, even if creations from the school of the great Vicentine were to be transferred to the high North. The activity of the principal master was at this stage rather as

esigning in the same spirit, than as imitating. In the late Renaissance the form canon became in general more severe and was handled in a more calculated manner. The architecture in its grand designs frequently makes an imposing impression; b but the details often appear cold and lifeless. This tendency corresponded so strongly to the English art spirit, that it opposed an insurmountable obstacle to the victorious course of the Barocco style, penetrating into nearly all civilized countries about the end of the 17 th century.

B. The Most Important Monuments.

The earliest work of the English Renaissance is the tomb of Henry VII and his wife in Westmenster Abbey (1518), by Pietro Torregiano from Florence, a fellow pupil of Michelangelo. It is a splendid free structure of marble with arcades on piers, most richly adorned by sculptures. Likewise the first great chateau of the early Renaissance was by an Italian, Longleat House, erected in 1567-1579 by Giovanni of Padua. The architecture is restrained in tolerably severe forms. But in the ground plan the master followed the custom of the country, when he subdivided the facade of the rectangular design by many projections and treated the two small courts as merely
33. light courts. As the first native architect is named John Shute, already known by his literary labors (page 326), and architect of the queen. His practical activity as such was of but brief duration; he died in 1564. He was succeeded by John Thorpe, the great master of the early English Renaissance. He began his abundant activity about 1570. He passes as the creator of the most important country seats of that time. Burleigh House (15/7), whose garden front is entirely resolved into narrow wall surfaces by projecting facades and polygonal towers; Wollaton Hall in Nottinghamshire (1580-1588), t that exhibits a massive middle building with angle structures like towers, already decidedly adopting Renaissance forms by the use of pilasters and columns in the usual sequence, yet retaining the great mullioned windows and with graceful gables on the angle buildings, which are imitated from the Netherlandish; Longford Castle near Salisbury (1591-1602) with proud, low and very broad round towers at the angles and open

loggias in two stories on the middle structure of the main f facade; Holland House in Kensington near London (completed in 1607), distinguished by picturesque grouping, rich and varied external architecture and numerous gables; Hatfield House in Hertfordshire (built in 1611) with splendid treatment externally and internally. (Figs. 375, 376). The middle building of the garden facade is indeed the most magnificent show piece in cut stone architecture of the developed English Renaissance. Likewise a great number of "Colleges" (page 115) in Cambridge and Oxford expressly present examples of the Elisabethan style. At the entrance of the Bodleian Library at Oxford, Thomas Holt in 1597-1302 placed five stories of columnar orders over each other, that are coupled in pairs and flank the round-arched portal as well as the mullioned window. One of the latest principal works of the early Renaissance is Aston Hall near Birmingham (1618-1635), a relatively simple b building, but characteristic for the greater number of the E English country seats of this time. (Fig. 372). Besides the seats of the nobility and the public buildings, the citizens' architecture of the early Renaissance in an entire series of cities is represented by works meriting consideration, both in stone and in wooden construction.

The chief master of the English high Renaissance was Inigo Jones (1573-1651), whom the English revere as their greatest architect. He was twice in Italy for continued studies, and there became a zealous representative of the tendency of Palladio. No other northern master entered so deeply into his spirit as Jones. His architectural activity commenced about 1604. In the year 1615 the king appointed him superintendent of buildings. Soon afterwards he designed by order his chief work, a colossal palace for London, which in a later second design he enlarged into a still greater design. According to this the structures formed a rectangle 1200 × 899 ft. and were grouped around seven courts, an elongated middle court and three smaller courts at each side. The middle ones of these were designed as arcaded courts. Unfortunately only the banquet hall, Whitehall, was completed, having a width of seven window axes. The structure closely adheres to Palladio's works. (Fig. 377). Only in one point the British master did n

not tread in the footsteps of his Italian instructor; he made no use of the combination of several stories. * Whitehall is in two stories. The proud facade above a rusticated base has on the four inner window piers three-quarter columns of the Ionic order in the lower and of the Corinthian in the upper story, at each side of the outer windows being a pilaster with coupled columns at both angles. Above the main cornice e extends a crowning balustrade. On the garden facade of S. John's college in Oxford (1631-1635), Jones adhered to tradition in the arrangement, still colthing the structural members in Renaissance forms. Of his other works are to be mentioned :- Raynham Hall in Norfolk (1630), the former villa of the queen in the park of Greenwich, whose middle projection in the upper story was resolved into a loggia with six columns; Wilton House in Salisbury (1640) with the splendid rooms known as the "single and double cubes", as well as Ashburnham House in Westminster with an imposing stairway. On the church of S. Paul in Covent Garden at London he built a portico, where he first transferred the scheme of the columnar t temple with Corinthian columns and angle piers to church architecture. As a particularly beautiful work was esteemed the no longer existing facade of Somerset House.

Jones was one of the great masters of architecture. He most strikingly embodied the ground principles established by himself:- "Order in the treatment of buildings, solidity in construction, strength and freshness in style". He was a master in dominating architectural masses and in establishing the proportions, grand in the architectural disposition, distinguished in architectural expression, avoiding everything merely external and little. His works are characterized as unified creations of an artistic individuality, full of character, mature, with a sovereign certainty of the treatment of interiors in materials and forms.

After his death occurred a period of repose in the development of English architecture. It first arose in a new advance at the time, when Christopher Wren, the principal master of the English late Renaissance began his epoch-making activity. The creations of this successor, allied to the great

Jones in spirit, originated in the period of the Barocco style. We shall therefore consider them in the next volume.

** Later masters, John Vanbrugh, James Gibbs and others generally employed the colossal order.*

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Concert Hall in Leipzig, completed in 1884 by his associate S Schmieden, that in its Hellenistic-Classistic Renaissance produced a very distinguished impression. Herman Ende (1830-1907) treated the Museum of Ethnology at Berlin (1880-1886) in the heaviest forms of the Italian high Renaissance, particularly in its circular building constructed at the corner of two streets. Kayser & von Grosheim passed from the Italian to the German Renaissance in the Buchhändlerhaus (Book-dearler's house), which they created in Leipzig (1888). Later they turned to Schlüter's barocco. Berlin architecture of modern times reached the climax in the Reichstaghaus (Diet Palace) erected by Paul Wallot (page 324) (Fig. 272), which rises on an area 450.8 × 306.1 ft. with an assured mastery of the internal treatment and of the architectural masses, developed on a Classistic-Barocco basis, full of character, with an architecture in the form combination of aspiring forces, strikingly expressing the purpose of the structure, and to be counted with the most prominent secular works of the 19 th century.

In Leipzig Ludwig Hoffman and Paul Dybwad erected the building of the Imperial Courts (Reichgerichts) (1887-1895); the a architectural masses are dominated by a mighty dome and exhibit a dignified Classistic clarified architecture holding a mean between the Italian and the French Renaissance. The Grassi museum (completed 1895) was created by Hugo Licht (born 1842), a pupil of Lucae, has a highly monumental effect by its facade of 12 Composite columns, recalling palace Czernin in Prague (page 160), which stand on a rusticated lower story and extend through two stories. The same master gave a very good example in the rebuilding of the city hall at Leipzig, grouped around the principal tower of the old Pleissenburg, for the utilizing of the native Renaissance, rooted in the spirit of the locality, in a very picturesque conception.

At Hanover Carl Wilh. Hase (1818-1902), an important representative of north German brick Gothic, and a highly esteemed instructor at the Polytechnic school, to whom adhered a widely branches school as the "German Viollet-le-Duc". Hase restored with thorough understanding and reverence a great number of mediaeval churches, erected at Hanover the Provincial Museum (1853-1856) in a modern conceived Romanesque style, the Ch-

Christus church (1859-1864) as a cross-shaped basilica in the style of the developed north German early Gothic, to which the master and his school remained faithful for a long time. His chief work was the restoration of the Marienburg, which his p pupil Edwin Oppler (1831-1900) completed, and who had also worked under Viollet-le-Duc.

In Cologne the renewal of the works for the completion of t the cathedral, which required an expenditure of six million d dollars, and was regarded as a national problem for the entire German people, afforded particular evidence of the swelling w waves of inspiration for the middle ages. As the leading architects were employed Architectural Inspector Ahlert from 1824 to 1833, and after him on Schinkel's recommendation Ernest Fried. Zwirner (1802-1861), particularly important as a constructor, and after his death , Richard Voigtel (1829-1902). The cathedral was completed in the year 1880. The severity of the prevailing esthetic conception, which employed similar masters everywhere, that the same structural problem was to be solved or indicated, led to a certain monotony, which distinguish the new postions of the structure from the older ones, created rather according to freer artistic views. Among the numerous g great churches, which were restored and completed in the 19 th century -- there may be mentioned here only the cathedral at Spires by Hübsch, the minster at Ulm by Thrän, Scher and Beyer, the cathedral at Regensburg by Densinger -- the construction of the cathedral of Cologne occupies the first place.

In Carlsruhe the Museum for the combined collections (1865-1870) erected by Joseph Berkmüller (1800-1879) bears the stamp of a still pedantically conceived Italian high Renaissance. After him, Architectural Director and Professor in the Polytechnic school, Joseph Durm,* also very fertile as a writer on architecture (born 1837), was the most influential representative of the Renaissance. On his most prominent buildings, the Festhalle (Festal hall), palace Schmieder (now palace of prince Max), and palace of the hereditary grand duke in Carlsruhe, appears a transition from the at first refined Hellenistic conceptions to a stately and extremely rich Italian high Renaissance, and from this to the Barocco. In contrast to him was Carl Schäfer (1844-1908), esteemed as a Gothicist and instruc-

instructor at the Polytechnic school, whose principal work was the University hall at Marburg. About the end of the 19 th century the architectural firm of Curjel & Moser stood in the foreground of architectural activity in Carlsruhe. In their church buildings, such as the Christus church at Carlsruhe and the church of S. Johann at Mannheim, they show themselves adherents of a picturesque and freely designed mediaeval conception; on the contrary in their secular buildings (palace of crown prince in Carlsruhe) they fall into the ranks of modern artists. In Mannheim Bruno Schmitz (born 1858), well known as an architect of memorials (Kyfthaus Monument), created the Rosengarten (Fig. 273), a concert and festal hall, in which is shown the transition to the newest tendency in art, freeing itself from all historical forms.

* *Durm's most important works on the history of architecture are; Baukunst der Griechen, Baukunst der Etrusker und der Römer, and Baukunst der Renaissance in Italien, in the Handbuch der Architektur.*

Stuttgart received in the Villa Wilhelma one treated entirely in the Moorish style, built in 1842-1852 by Carl Ludw. Wilh. von Zanth (1796-1857). The Royal building (Konigsbau) designed by the Classicist Joh. Mich. Knapp (1793-1856) and executed by Chr. Fried. Leins (1814-1892), is a still strongly Classistic building, touched by the early work of the Renaissance, opening in a great colonnade toward the Schloss Place. The picturesque Protestant church of S. Johann (1866-1876) located on Lake Feuer, Leins treated charmingly in the Gothic cathedral system of the best period, but without finding the correct scale for the proportion of the whole to the abundance of decorative forms. Joseph von Egle (1818-1899), an influential instructor in the Stuttgart Polytechnic school, erected in Stuttgart the Polytechnic school (1860-1863) in an Italian high Renaissance, permeated by French motives, and the Maria church as a hall structure in the forms of the early Gothic. Skjold Neckelmann was the creator of the State Industrial (Landesgewebbe) Museum (1890-1896), treated in a bombastic early Barocco, whose principal room, the King Carl Hall, is showily decorated. The latest monumental building of Swabia was erected by J. Vollmer and H. Jassoy in the City Hall at Stuttgart, com-

completed in 1905, which in its modernized Gothic forms fits very well into the view of the city.

In Munich atbou the middle of the 19 th century, Fried. Bürklein (1813-1872), at the desire of the king, who wished to h have a new architectural style, made the attempt to fust together mediaeval and antique form elements, without thereby attaining to an organic unity of style. The Maximilaneum erected by him on a dominant terrace as a termination of the Maximilianstrasse, conceived in Gothic but translated into Italian Renaissance by the influence of Semper, and the Government Building (1858-1864), rather representing mediaeval forms, can be just as little satisfactory, as the opposite Old National Museum, built by Edward Riedel (1813-1885). Freedom from this unfortunate "Maximilian style" came to Munich architecture wi- the appearance of Gottfr. von Neureuther (1811-1887), a pupil of Gärtner and a zealous advocate of the Italian Renaissance. His Polytechnic School there (1866-1870) is characterized by picturesque design and refined feeling for the treatment of details. (Fig. 274). The Academy of Art (1873-1855), both in the arrangement of the ground plan, as well as the grand treatment of the facade and the careful erection (the facades are of marble) is an equally distinguished architectural work.

The accession of Louis II (1864) was important for the architecture of the Bavarian court, in so far that the art-loving young king showed from the first an unusual desire to build. He followed his romantic enthusiasm, and for the embodiment of his ideas called an architect, who possessed neither the power nor the capacity to guide the rich endowment of the king into fruitful paths. Thus under the charge of George Dollmann (1830-1895), a pupil of Klenze, and with the assistance of Joseph Hoffmann (1840-1896), the capricious chateaus of the Bavarian king, the Royal chateau of Linderhof (1869-1878), located in direct isolation in the forest of upper Bavaria, the chateau of Neuschwanstein (1869-1886), fabulous as a theatre d decoration changed into stone, and built in a charming Alpine landscape, designed by the court painter of the theatre, Chr. Plank, with the rich internal ornamentation (Fig. 275), and finally the chateau of Herrenchiemsee (1878-1885), produced in veneration of the sun king Louis XIV and imitated from Versailles.

Likewise in the art of the citizens of Munich was expressed the inclination of the character of the people toward picturesque treatment. Meanwhile and under the influence indeed of the "old German" art industries enjoying high esteem in Munich, for which George Hirth had opened the way in literature with his "Formenschatz der Renaissance" and his "Deutschen Zimmer", this had turned to the German Renaissance with its picturesque grouping, bay windows, gables and small towers. Lorenz Gedon (1843-1883), highly gifted as architect and also as sculptor, aroused very great attention to this by his rebuilding of the Gallery of count Schack (1872-1874) in an extremely rich and freely conceived German Renaissance. Gedon later devoted himself entirely to the decorative arts. His exuberant i imagination soon found the way to the Barocco and the Rococo, for which he prepared the ground by his influence in architecture. The middle ages further celebrated a revival in Munich in the city hall erected in 1867-1879. (Fig. 276). In the competition preceding it, George Hauberissen won the victory (born 1841), who had educated himsel in the Munich, Berlin and Vienna schools (there under Schmidt, page 333) for great creations, chiefly by his design claculated for picturesque effect.* The most amiable and intellectual later representative of the German Renaissance in a deeper but freer conception is Gabriel Seidl (born 1848). All his works are very effective in general, individual in details, dignified and attractive by the harmonious decoration. His monumental church of S. Anna at Munich (dedicated 1893) is treated in the southern German Romanesque style, the Künstler (Artists') House is in external appearance in German Renaissance, but the great hall is splendid in a freely transferred early Italian Renaissance, treated with refined feeling. Gabriel Seidl's most important building is the (New) National Museum (1894-1900). In the design of the structure and the treatment of the interiors, in which the native art was to be represented, where style conditions are indeed in place with regard to their historical presuppositions, Seidly showed himself a distinguished eclectic of refined feeling. For each connected group according to place and time, he created a corresponding interior, which was also characterized as such externally. The different parts of the building are

picturesquely combined in an unconstrained manner. (Fig. 277). Besides Seidl, **Friedrich** Thiersch (born 1852) worked in Munich, who in his colossal Palace of Justice (1891-1897) erected a B Barocco structure of dignified and highly monumental effect. Since the end of the 19 th century came into use a citizens' and cheerfully attractive Barocco, which by a series of architects of modern ideas has been transformed in the modern spirit.

* *Hauberisser was otherwise an adherent of the German Renaissance, which he very expressively showed on his city hall at Wiesbaden.*

The architecture of SWITZERLAND received a great advance through Semper (page 332). The Italian Renaissance entirely dominates the field of work, often with a Barocco addition showing itself in the ornament. On a great number of banks, commercial and residence buildings, it came into use, partly in a m monumental treatment. In Zurich the Northeastern Railway station (Fig. 278) erected by J. F. Waner permits the direct recognition of Semper's influence. The Neo-Romantic is only represented by a prominent work in the picturesque Landes (National) museum (1892-1898), built by Gull. The magnificent Ton (concert) hall (1893-1895); Fig. 279) was created by the Vienna architects Fellner and Helmer. In the federal capital of Berne, Studer built in 1857 the Federal Legislative Building (Bundesratsgebäude) in the Florentine palace style of the early Renaissance. From 1894-1902 it was enlarged into a design of grand style by the gifted Hans Auer (1847-1906) a pupil of Semper and assistant of Theophilus Hansen (page 304). The imposing middle portion,containing the hall of representatives, projects in semicircular form above a massive rusticated lower story, with a colossal Composite order of columns, flanked by two towers and covered by a dome for admitting light. The form treatment is a mean between the Florentine early and high Renaissance, and is very happily adapted to the earlier building. It lends to the palace, enthroned majestically above the deeply sunken valley of the Aar, an extremely dignified impression. In the most recent time the architecture of Berne has turned to the Barocco style, existing there in numerous works of the 18 th century, which by original treatment of the details, and particularly by the great projection of the roof pec

peculiar from ancient times to the houses of Berne, and has e experienced a national transformation.

The imperial AUSTRIAN city of Vienna became an important centre of art culture in the second half of the 19 th century. T The fortifications, that surrounded the old city and thus obstructed a free development of architectural activity, were torn down (after 1858). In their places originated the great Ringstrasse, on which rose one magnificent structure after another. After the middle of the century, Edward von der Null (1812-1868) and August von Siccardsburg (1813-1868) by their joint labors broke out a freer path. On their principal work, the Grand Opera (1861-1869), which opens in a doubled loggia to the Ringstrasse and is richly treated in the external architecture as well as the internal decoration; they employed the forms of the developed Italian and French early Renaissance in happy combination. But the direction struck out by them excited no great imitation. In the year 1846 the Dane, Theophilus Hansen (1813-1891; page 304) came from Athens for a permanent residence in Vienna, where he erected the University in 1837-1842 in the Classical style (in 1860 he built there the Academy of Sciences in the style of the Parthenon). There he became the creator of the immense Parliament House (1874-1883), which is built on an entirely symmetrical ground plan 531.5 × 459.3 ft. in a Renaissance style, which by a cheerful and extremely attractive Hellenism, particularly on the porticos of the middle and angle projections, receives an independent stamp. Hansen was also an eclecticist. The Museum of Arms at t the Arsenal (completed 1856) and the Greek church on the Fleischmarkt (1858), he treated in a picutresque Byzantine style approximating in details to the Hellenistic series of forms; on the Academy of Art (1872-1876) and the Bourse (1872-1877) he transferred his Hellenism to the Italian high Renaissance.

While Hansen alterwards brought the Classicism into high consideration, Heinrich von Ferstel (1828-1883) represented the Romantic tendency. His Votive church (Fig. 280), erected 1856-1879 for the sin of the attack on the emperor, is indeed the most mature German church building of the Neo-Gothic. Ferstel saw his strength more in the Italian high Renaissance than in Gothic. The buildings of the Austrian Museum for Art and Ind-

Industry (1868-1871) and the University (1874-1884) are each distinguished by a very beautiful arcaded court, and exhibit the Italian high Renaissance in a noble and powerful treatment. (Fig. 281). More severe than Ferstel in acceptance of Gothic, Fried. Schmidt (1825-1891), came from Wurtemberg, was trained in the workshops of Cologne under Zwirner, and from 1862 estab-as cathedral architect of S. Stephen in Vienna. In the extremely picturesque Parish church at Fünfhaus near Vienna (1867-1875), he erected an octagonal central structure with a great dome and two front towers in Rhenish Gothic. (Fig. 282). His principal work, the City Hall in Vienna (1872-1883) is in its way a model creation, by the splendid design od its ground plan, finely satisfying the requirements of a good administration and by the Renaissance motives happily combined with Gothic architecture.

The architectural activity of the imperial court was continued in the paths previously sketched by Semper (page 322). When Semper came to Vienna, the ground plan of the K. K. Court Muesum had been designed by Carl von Hasenauer (1833-1894), working there besides the masters just mentioned, who had received his training in Brunswick and Vienna, then undertook extended tours through Italy, France, Holland and England, and in Vienna at the beginning of the sixties had made himself conspicuous by some secular buildings, that caused much surprise. A violent contest broke out concerning its plan and architecture, in which Semper was required to make the decision. He subjected Hasenauer's plan to a revision, and with the collaboration of Hasenauer, he prepared a grand general plan, in which the Hofburg theatre should occupy a prominent place. He gave to this the form of plan, which he had projected for the unexecuted Richard Wagner Festival Hall at Munich. Semper was further engaged on the structure of the Court Museum (begun in 1872). The facades (Fig. 283) recall the Dresden Gallery of Paintings, but already show a transition to the Italian Barocco style. The Hofburg Theatre was executed in 1880-1886 by Hasenauer alone, since Semper would no longer work together with this rival, who violently opposed him, and had left Vienna in 1876 (page 323). Both in the external architecture as well as in the splendid interior decoration of this theatre

(Fig. 284) was manifested the complete transition to Barocco showiness. Hasenauer doubtless possessed strong decorative talent; but in the grand monumental treatment he remained inferior to the previously mentioned masters. In the most recent years Otto Wagner (born 1841), an architect educated in Vienna and Berlin, stands at the centre of architectural creation in Vienna. But his activity and that of his numerous pupils and adherents belongs substantially to the modern tendency in art, as the principal founder of which, Wagner is to be taken. (Page 366).

Likewise in the Hungarian capital of Budapest, architecture in the 19 th century in evident competion with Vienna assumed an unusual advance. Numerous churches and secular buildings were erected and indeed during the first half of this century entirely within the bounds of Classicism. Later the architecture in general took a development similar to that in Viennt. The most prominent representative of the Neo-Renaissance was Nicolaus Ybl (1814-1891), educated in Vienna, who erected the cathedral of S. Stephen, begun (after 1868) by Joseph Hild ((died 1764), and the Opera House (1879-1884) in the most mature and luxuriant style of the Italian high Renaissance. On t the more important of later works, the Parliament House erected(after 1882) in colossal dimensions by Emanuel Steindl (Fig. 285), the architecture of Budapest returned to mediaeval forms.

2. France.

The change from the Classistic bounds retained by the Empire style occurred at the beginning of the thirties. Already Percier, although he recognized Grecian architecture as a perfected model, had recommended for France the architectural forms of the Italian Renaissance as better adapted to the climate a and the requirements of the country. But also the native art of the past found an increasing interest. By Jacques Felix Duban (1797-1870) in rebuilding the Ecole de Beaux Arts, remains from the French late Gotnic and Renaissance were utilized with great reverence and refined taste. * The chateau at Blois (volume 2, pages 156, 264) and the Gallery of Apollo in the L Louvre (page 93) owe to him their intelligent restoration. The gifted Henri Labrouste (1801-1875), pupil of H. Lebas (page

253) held himself entirely free from the classical restraint. He devoted marticular attention to iron construction. At his Library of S. Genevieve (1840-1850), he covered the great reading room in a manner forming a model for the purpose, by a system of low domes resting on slender cast iron columns. Each dome has at its vertex a great glazed circular opening as a s skylight. The facade bears the character of an early Italian Renaissance. The ground story has only a simple round-arched doorway and small round-arched windows; above the belt cornice, ornamented by garlands, the upper story rises with a subdivision by a continuous series of great round-arched windows, walled up in the lower half, whose intermediate piers like wall strips stand on the belt cornice. Likewise the new reading h hall of the National Library was rebuilt in 1850-1855,and is constructed in a similar manner. Joseph Duc (1802-1878), a p pupil of Percier, was rather inclined to a Classistic-Grecian severity. His rebuilding of the Palace of Justice at Paris, begun in 1859 (Fig. 286), was partly destroyed by fire in the revolution of 1871, but was again restored later. To the same tendency belongs Hittorf's last great work, the Northern Railway station at Paris (1863), which by the grand iron construction over the hall 229.7 ft. wide, and by the facade opening in colossal round arches,as well as by its covering by doubled Ionic pilasters with a connecteng pediment of gentle rise, produces almost a modern impression.

** The view from the court of the chateau of Anet reproduced in Fig. 303 of volume 2 (page 261) was transported by Duban to Paris.*

To these works of the early Neo-Renaissance the adherents of the Neo-Romantic tendency opposed the Gothic. The forst of t their larger buildings was the church of S. Clotilde in Paris, 1846-1857), arranged as a basilica with two pointed front towers, that Franz Christian Gau (1790-1853) from Cologne commenced in an early Gothic, yet timid treatment, and Theodore Ballu (1817-1885) completed in already more mature forms. The Neo-Gothic received a deeper tendency in the works of the important Jean Baptiste Lassus (1807-1857), who was a pupil of L Labrouste, but then turned from the Renaissance and became a passionate advocate of the Gothic. The highly gifted Viollet-

le-Duc (1814-1879) joined him, just as a distinguished learned man, who investigated the middle ages in an exact and csientific method, as well as a talented architect of unusual creative powers. The magnificent restoration of the S. Chapelle (after 1838) and of Notre Dame cathedral (after 1842) in Paris, (volume 2, pages 100, 102), for which Lassus had previously prepared plans, are his work. Of his numerous other works of restoration, that of the castle of Pierrefonds (volume 2, page 156) stands in the first rank. The very harmonious court of the castle (Fig. 287) shows, how deeply the master had penetrated into the spirit of the middle ages. He prised the originality and stylistic correctness of the Gothic, but demanded particularly not a mere imitation, but a thorough grasp and b basal working working out of the architectural problems, with an independent employment of historical forms. By his numerous publications, which form a very valuable basis for the study of the Gothic church and secular architecture, even if we can no longer accept his decisions on all points, Viollet-le-Duc has created the greatest and most enduring influence. Leon Vaudoyer (1803-1872) joined Lassus and Viollet-le-Duc as a representative of the mediaeval treatment of forms. He had received a Classistic training, but had then passed over to the G Gothic. On his cathedral at Marseilles (after 1855), a three aisled cross plan with semicircular choir, outer aisle and circle of chapels, a great dome over the crossing, two small domes ower the cross arms, and two front towers above a portico, he indeed resorted to southern French Romanesque forms with the use of colored materials, that recalls the buildings of t the Pisan school (volume 2, pages 15, 50). In the second half of the 19 th century and under the government of Napoleon III, who endeavored by zealous fostering of commerce and industry, sciences and arts, to strengthen and increase the esteem for the crown, a series of grand architectural problems fell to the French architects. By their excellent training in both c construction and the treatment of forms, they acquired a position dominating almost the entire architecture of the WestThe introduction of iron into monumental architecture made greater advances. Victor Baltard (1805-1847) erected in the colossal Central Market Halls in Paris (1852-1874), calculated for 3000

sale stalls, a glass palace constructed or iron and glass above a brick base, a model for the European continent. * In a n novel and bold manner he then introduced the iron construction with an additional prominence in his fine church of S. Augustine in Paris (1860-1868). On the site given by two diverging streets, widening from the facade to the choir, he arranged in a very happy manner a basilican nave with side chapels of ever increasing depth, and in addition thereto a great central area on an irregular octagon with three side apses and chapels. The construction followed as an iron framework in combination with stone. The vertical supports are executed in cast iron, the vaults and ribs, as well as the pendentives, the dome and the lantern, are of wrought iron. For the ornamentation Baltard borrowed the decorative forms of the stone architecture of the early Renaissance. Thus he was not so far advanced, as to give to iron independent forms developed from its metallic character.

* *A crystal palace had already been built in London for the World's Exhibition of 1851.*

As a church architect, the previously mentioned Theodore Ballu (page 337) enjoyed high esteem at that time. His principal work, S. Trinite at Paris (1861-1867)in the two story facade with middle tower rising above three round-arched portals, exhibits an early Renaissance, which in the window treatment and triforium adopted many motives from the Romanesque style, but also in the numerous breaks in the cornices and the niche architecture some of the late Renaissance. Ballu designed and had charge, together with Pierre Joseph Deperthes(1833-1898), of the rebuilding of the City Hall in Paris(volume 2, page 258), where the ancient plan and structure in general was retained. The very rich external and internal architecture acquired the character of the developed early French Renaissance.

The architecture of France in the second empire is indeed most strikingly characterized by the Grand Opera in Paris. To obtain designs for a new opera house, a competition was ordered in 1860. The prize was won by a pupil of Lebas (page 253), Charles Garnier (1825-1898). In his design he had not only expressed the purpose of the building by indicating rooms for a

access, the audience and the stage rooms, even externally in a happy manner, but he had also created an architecture intermediate between the Italian high Renaissance and the style of Louis XIV, which was received by the most lively approval by the deciding committee. Already the facade had an extremely showy effect. It is arranged with seven axes, the two outer ones being treated as projections. Above the ground story opening in round-arched doorways is arranged a loggia occupying the entire width, with coupled columns after the style of the Venetian high Renaissance, a massive crowning cornice, and a high attic, indeed not fortunate in its proportions, over richly decorated by ornamental and figure ornamental work. The polychrome treatment by the use of red Jura stone beside white and Swedish marble, and also partly by gold, even heightens t the truly unexpected effect. In the interior, particularly t the stairway (Fig. 288) and the foyer are showy interiors almost unequaled, which gave to the French court and the distinguished Paris world assembled there, a striking background. T The completion of the building externally followed in 1867, in the interior in 1875. On the Theatre and the Casino at Monte Carlo, Garnier produced a still luxuriant Barocco, but one restrained within fixed bounds.

The most important Paris church building of this time is the Expiatory church of Sacre Coeur on Montmartre, on the basis of a competition, which fell to the architect Paul Abadie (1812-1884), who worked on Notre Dame under Viollet-le-Duc, after 1874 had independent charge of its restoration, and had built in southern France (Angouleme, Bordeaux) some Neo-Romanesque churches and city halls. The ground plan has the form of a G Greek cross with a great choir addition,in accordance with the cathedral system, and a deep porch. Over the crossing rises a dome 262.5 ft. high;above the chapels in the angles of the cross arms rise four smaller subordinate domes. In the plan and the architectural treatment, the southern France Romanesque style here celebrates a magnificent resurrection, as it had b been particularly developed in the domed churches of Aquitaine. (Volume 2, pages 13, 44). Suggestions from the Romanesque style may also be recognized in Palace Trocadero, erected for t the World's Exhibition of 1878 by Gabriel Davoud (1823-1881).

and Jules Desire Bourdais (born 1835). The principal building projects between to square towers in a great semicircle with colossal arched windows between buttresses, toward the bank of the Seine, surrounded by an open two-story round-arched coggia. Freely developed from the requirements with an assured feeling foo the effect of the masses, the design is executed in a plain combination of bricks and cut stone, and it should still be taken as a model for similar structures. Davioud had later introduced the Barocco style of Louis XIV on his frequently imitated Theatre du Chatelet on Place Chatelet in Paris. Otherwise the architecture of the republic remained in an enterprising spirit, evidently behing that of the preceding second empire. Among the later architects Leon Ginain (1828-1898), a pupil of Labrouste, and Paul Sedille (1836-1900) made a name, Ginain with the church of Notre Dame des Champs and the rich palace (Museum) of the duchess of Galliera; Sedille with his showy structures for the World's Exhibitions of 1878 and 1889, a and the great Magasin du Printemps (department store) (1881), on which iron construction enters into a fortunate combination with stone. An entirely novel type of structure was erected by Gustave Eiffel (born 1843) in the well known Eiffel Tower for the World's Exhibition of 1889, 984.3 ft. high and entirely constructed of wrought iron. This colossal iron framework merits our recognition on account of its originality, consistent form and construction, and also a certain beauty is peculiar to it, yet a grand monumental effect can scarcely be attributed to it. Yet the Eiffel tower gave a powerful impulse to the endeavor for a new and "rational" style, independent of h historical forms. But the leadership in the movement with this aim, and already powerfully aroused at the beginning of the nineties and extending over the entire West, was then taken by German architecture.

3. England.

The freedom of English architecture from the fetters of Hellenistic Neo-Classicism was secured in the second quarter of the 19 th century. Indeed a series of important architects remained faithful to the antique ideal of art; they sought by s suitable transformations and greater adaptation to modern architectural requirements, to retain for this its previous impor-

importance. But the Renaissance introduced by them could not advance against the strong mediaeval current. The greater harmony of the Gothic architectural monuments with their natural surroundings, their self-evident structural principles, opposition to the entirely decayed Classicism, and not least the G German nature expressed in Gothic art, gave to its adherents a successful power of conviction and a great superiority over the Renaissance.

The Neo-Gothic required a longer period of development to r reach its climax. Men began unconsciously with the most striking motives, according to a well known general principle repeated in our previous statements, which were offered by the l latest Gothic of the Perpendicular style (volume 2, pages 111, 113); then in the evolution they went further back to the early Gothic, and from this slowly forward again until the Perpendicular style was reached, which as in the Elisabethan and Jacobean time (volume 2, page 327) was finally mixed with the forms of the Renaissance. In the first stage of the Neo-Gothic style frequently resulted a direct of still Classistic structural framework in a Gothic exterior. That also entire mediaeval plans were imitated need not cause surprise. * Gradually under the influence of several important literary publications on mediaeval architecture was built up a deeper understanding of the Gothic architectural organism. Among these publications those of Augustus Pugin (1762-1832) and of his son Augustus Welby Pugin (1813-1852) take the most important place. The younger Pugin (page 312) became the actual path-breaker of the English Neo-Gothic. He commended the Gothic style as not only the sole one available for church architecture, but also that most suitable and dignified for secular architecture.

** James Wyatt (1748-1813) erected about 1807 in Salisbury the chateau of Fonthill Abbey in the form of the plan of a Gothic monastery. It thereby found such approval, that a great number of noblemen's seats were built in the same style.*

After the middle of the 19 th century the aims and the style tendencies became clarified. The Romantic movement had previously introduced a mighty religious exaltation as a reaction against the rationalism of the preceding century, representing reason in religious opinions. The consequence thereof was a

close approximation to Catholicism, which even led to the adoption of a solemn altar service and of processions. * Under the high church feeling of the time, church architecture made an unusual advance. But also to secular architecture was devoted public interest in increased measure, after the grandly intellectual John Ruskin (1819-1900) in his writings on the formative arts, with unsurpassed eloquence had treated the meaning of architecture, its nature and its aims. Ruskin unlike Pugin, did not see in the English late Gothic the only saving art; he was also enthusiastic for French and Italian models, particularly for the rich splendor of the marble incrustations and mosaics of Venetian buildings, indeed chiefly on account of their poetic harmony and picturesque charms, for which Ruskin first spoke. He was a zealous champion of all hand wrought and personally treated art, free from transfers like patterns. Thus Ruskin on the one hand opened to English architects views of the architecture of foreign lands, whose forms brought enrichment to them, and participated in their problems, even in competitions; on the other hand he aroused in them a particular esteem for genuineness of materials, solidity and visibility of the construction, and the correctness, simplicity and naturalness of the architectural and ornamental treatment.

** The influential younger Pugin passed over to Catholicism in his religious enthusiasm.*

Favored by the economical improvement occurring after the sixties, English architecture now took on a free development, independent from foreign countries. Church architecture for the reasons previously mentioned adhered to the altar service and the form of plan of the mediaeval works intended for solemn processions. For the small and often truly picturesque p parish churches, the buildings designed by Pugin became typical. He preferred the three or two aisled basilican plan without galleries, with a deep rectangular choir, visible framework of the roof, a front tower on the longitudinal axis, and w with entrance by a side porch. The Protestants wer disinclined to the ritual solemnity and firmly adhered to their strict conceptions -- these were chiefly the sects of Calvinistic Presbyterians, Congregationalists (Independents), Baptists and Methodists-- also expressed their opposition in their religious

buildings. They erected houses for preaching with exclusive regard to the greatest possible number of seats in an arrangement, such that from each seat one could properly see and hear the preacher. Around the great audience rooms were grouped other rooms for use by the community; a smaller assembly hall, perhaps also a school room, a reading room, library, smaller rooms for the clergy and the administration, and in more extended plans even a gymnasium, concert hall, conversation hall a and the like. The possibility of connecting rooms by the installin of sliding partitions was from the first taken into consideration. For the construction was chiefly employed Gothic, but also Renaissance, occasionally also Barocco, and not seldom purely structural forms.

In secular architecture English architecture differs from t that of the continent substantially only by the freer handling of historical forms of styles. Innovations, such as the introduction of iron as a structural material might have caused, changed the structural framework but little. But these appeared so much the more in the great city business structures. T This entirely freed itself from tradition and constructed the walls enclosing the rooms and their openings exclusively according to the requirements of the business. (Figs. 292, 349). English architecture preceded that of the continent in this. Still more was this the case in house architecture. The expressed domestic sense of the Englishman, who even in modest conditions strives to own his own home, the generally great prosperity of the citizen class, and the enjoyment developed through many generations, of a certain pure domestic comfort has led here for centuries to a high domestic culture. This indeed in the residences of the class op owners, during the supremacy of Palladianism and of Neo-Classicism, caused many sacrifices in the arrangement of the ground plan and in the structure for the benefit of the external architectural treatment. But in the architecture of the citizens, which was less affected by the changes in the grand architecture, these were expressed the more clearly. To them was devoted the attention of the house architects, after the requirement to build in "full style" in the former classistic sense was set aside, and men had broken out a path for an appropriate, genuine and comfort-

comfortable, and thus a "habitable" mode of building. The advantages of the plain citizen's houses were then recognized, that had remained in great number, particularly from the reign of queen Anne (1702-1714). * In their picturesque arrangement in the green of the garden, in its structure developed only w with regard to the requirements of space and light, with the cosy and inviting bay windows between the red brick walls, the 370 connected rows of windows, the plain white window enclosures, the shadows of the projections of the roof, and the massive w chimneys, these arouse the highest admiration. In reference to them the English architects after 1860 developed the modern type of the house for a single family. They gave it a very f free arrangement of the ground plan. On the very modest exterior is strongly emphasized the rural character in the structural material and the treatment of details. The charm of these buildings substantially consists in, that in their entire appearance they express the suitability, comfort and truth of the internal arrangement. (Fig. 289). Likewise in the interior decoration the reform aimed at simplicity, propriety, genuine materials and workmanship, finally under the lead of the celebrated William Morris (1834-1896) extended to all art industry. By him English architecture acquired a determining influence on the entire domestic architecture of the continent. Indeed on the buildings also erected by the extensive contractors in English cities for rental, a lack of taste appeared j just as on the continent. But the tasteful general appearance presented by the architecture of England in the second half of the 19 th century was but immaterially influenced.

** To this citizens' style of architecture has been given the name of Queen Anne style, but it must not be overlooked here, that the queen herself caused all the larger public buildings to be erected in the Palladian style. (Page 201).*

The greatest English architect in the first half of the 19 th century, Sir Charles Barry (1795-1860), was an artist nature allied in spirit to the German master Semper by his power in monumental treatment. Already in the thirties he left the monotonous Hellenism for the introduction of the Italian high Renaissance. His Traveler's Club House erected in 1830-1832, on which is visible the influence of palace Pandolphini, and

the facade of the Reform Club House (1837), influenced by the palace Farnese in Rome, are the earliest London buildings of the Neo-Renaissance. Its first representative also became the greatest Gothicist of his time. It was in great part to be a ascribed to the influence of Pugin, that Barry's most important creation, the famous Parliament House in London (completed 1852) and erected on the bank of the Thames, was built in the Gothic style. Barry proved himself a master in this, who dominated the prescribed mediaeval series of forms with astonishing certainty, but also in free creation sought new forms of treatment. The design arranged in a clear ground plan in colossal dimensions is grouped unusually well, in general with a grand and monumental effect, (Fig. 290), and in details possesses the highest artistic charm (Fig. 291), in spite of a certain monotony produced by the strict employment of the perpendicular style with continual repetition of tracery and of the same form of windows. Equally stately in the smallest details is the effect of the interior executed in the same style, even if in regard to symmetry, the often excessively large halls a and rooms partly suffer under an overloading with architectural and decorative forms. W. Pugin also took part in the treatment. His thorough acquaintance with the mediaeval conception of art and world of form, and the depth of his invention are expressed in a purity of style, that accurately produces the impression of genuineness.

A freer tendency, particularly drawing from French Gothic sources, was followed by George Edmund Street (1824-1881), Barry's pupil, on his churches and his most important secular building, the Law courts in London (1867-1882), on which he m made great sacrifices to the picturesque effect of certain motives, particularly the small round angle turrets, the triforiums and the grouped windows. Infinitely more severely proceeded (ir George Gilbert Scott (1811-1878), England's most important early Gothicist and church architect of the 19 th century. He was the restores of the cathedrals at Ely, Hereford, Exeter, Lichfield, and the Westminster Abbey church in London (Volume 2), and the builder of the great cathedral in Edinburgh, a three aisled cross basilica, as well as of the church of

S. John at Torquay, on which under Ruskin's influence he combined brick with marble after the Italian style. In the general competition for the rebuilding of the church of S. Nicolai in Hamburg, burned in 1842, he obtained the victory; this church was erected in 1846-1863 after his plans. William Butterfield (1814-1900) gave a variegated animation of the surfaces by colored tiles and stone slabs to his buildings, among which the church of All Saints in Margaret St., London (1849-1859), first erected strictly in accordance with high church requirements, and Keble College at Oxford, were much esteemed. John L. Pearson (1816-1897) sought rather to produce an earnest church harmony and antique effect by simplicity and purity of style. He employed brickwork without stucco and introduced v vaulting instead of the previously visible framework of the o roof, or of the ceiling sheathed in tunnel form. His most important works are Trinity church at Westminster (after 1850), entirely following old English models, the great five aisled church of S. Augustine in Kilburn in London (1871-1880) and the grand cathedral at Truro begun in 1880.

Since the eighties the more important church architects passed from early Gothic to high Gothic and the Perpendicular style. At the same time became apparent an increasing attention to the audience room proper. John Sedding (1837-1892) gave a wide aisle to the Trinity church in Sloane St, and on the contrary arranged the side aisles as merely narrow corridors. * He proceeded with greater freedom in the historical forms. His gifted pupil H. Wilson followed him in the way pointed out, b but went farther in the capricious employment of historical f forms. His picturesque church of S. Mark at Brithdir may also be regarded as a modern work. An exceptional position in English church architecture was taken by Westminster cathedral i (R.C.) in london, erected since 1895 by John F. Bentley (1839-1902) for Catholicism, elevated to new power. It was erected in brick masonry as a combination of the old Basilica of Constantine with the central building of S. Sophia (volume 1, pages 139, 154), in Early Christian-Byzantine forms, but which were personally conceived and worked over. Both the interior, magnificently decorated by the rich marble incrustations and mosaics, and the external view dominated by a square tower wi-

282.2 ft. high, produce an earnest, elevated and solemn impression. The Gothic style passes in England as specifically Protestant; therefore Catholicism preferably returns to the Renaissance in its churches. Among the churches of the sects (page 344), the Congregational church in Duke St. in london, built by Alfred Waterhouse (1830-1905) takes a prominent place. It is a great building for the congregation with an audience room like a concert hall and a massive principal tower in Romanesque forms. Waterhouse also appeared in secular architecture w with important works. The Town Hall at Manchester (after 1869) with a square principal tower on the middle axis of the facade and the grand Natural History Museum in London (1873-1880), w with facades faced with terra cotta slabs and adorned by charming terra cotta ornaments, both kept in the late Romanesque style, permit him to be recognized as an important and monumentally designing internal artist. The Union church in Brighton by John W. Simpson in the latest time is a central structure with square middle room, adjoined by three apses with galleries and half domes. The external architecture is clothed entirely in the forms of a rich Barocco style in the mean between the Italian and the French conceptions. With its mighty dome and the two towers of the facade it produces an imposing impression.

** Compare on page 324 the form of the plan of the church of S. Thomas in Berlin.*

In opposition to the Neo-romantic, that almost entirely dominated the church architecture, the Italian Renaissance introduced by Sir Charles Barry maintained an assured position in secular architecture. After Barry the much employed Sir James Pennethorne (1801-1871) passes for its chief representative. The University in London, built after his design and completed in 1869 by Tite, in spite of its rich architectural expedients, in general only bears the stamp of a weak, characterless, and frequently inorganic combination of Italian Renaissance motiwes. More tasteful is Th. E. Colcutt (born 1840), who again t turned to the English Renaissance in his works, among which t the Imperial Institute in London (1887-1893) is the most important, but also exhibits a certain inclination to rich forms and ornamental decoration.

A great and freely creating impulse arose in English archit-
ecture in Richard Norman Shaw (born 1831). He began with Got-
hic, but soon took up Renaissance and even Barocco motives,
which he employed with the highest artistic freedom. He exer-
cised an unusually fertile activity, first in church architec-
ture, but then exclusively in secular architecture, which he
led into new paths. His ground plans are regarded as models.
In the architectural treatment he showed himself an adherent
of a simple citizen's architectural style, controlled first by
considerations of suitability. He brought brickwork again in-
to use. By its preparation with the chisel and carving tool
in the mode already practised by Islam (volume 1, page 208),
he produced charming ornamental decorations. By the New Zeal-
and Chambers in Leadenhall St. in London begun in 1872, he ga-
350 ve to the modern business building an architectural form suit-
able for the time. To introduce abundant light into the rooms,
the walls are there resolved into piers, between which the win-
dows project like bay windows. (Fig. 292). Shaw allowed the
piers to intersect the great cavetto of the roof cornice with-
out further mediation. In this manner he produced a monument-
al and picturesque effect. The Head Police Station in London,
Shaw kept in a Dutch-English Renaissance. He disposed with en-
tire freedom of the small houses for a single family, of which
the most famous are those of the Villa Colony of Bedford Park
near London. In a similar tendency labored Ernest George & Pe-
to on their houses in Collingham Gardens in London (Fig. 293),
erected in 1887, where indeed historical style forms were emp-
loyed in more abundant measure. The public buildings, which
naturally afforded less opportunity for novel treatment, also
in the last quarter of the 19 th century still manifest a clo-
ser adherence to traditions. The Courts of Justice at Birming-
ham, erected by Aston Webb and Ingress Bell in 1887-1891, is
a dignified brick structure with rich terra cotta ornament in
the forms of the early English Renaissance. A somewhat more
mature stage of the early Renaissance is represented by Henry
T. Hare in his City Hall at Oxford, attractive by its personal-
ly freer conception. On the Britannia Royal Naval College in
Dartmouth erected by Webb, and the Royal College of Science in
London, as well as on the City Halls at Sheffield and Batters-

Battersea, which have the architect E. Mountford as their creator, the English high and late Renaissance appear with a Barocco strain. Entirely new, and entirely freed from all conven-
351 tionality, means of architectural expression were employed by G. Harrison Townsend in his Gallery of Paintings at Whitechapel in London, and the Horniman Museum there. He belongs to t the path-breakers of the modern tendency in architecture.

4. Italy and Spain.

In ITALY after a long period of repose, architecture made an unusual advance after the erection of the kingdom. (1861). The energy of the younk kingdom first of all expressed itself in the energetic spirit of the larger cities. These competed with each other in the remodeling and beautifying of their plans and the erection of impressive buildings. Yet the art of Italy, that in the period of the Renaissance and the Barocco styles had exerted a determining influence upon all European art, never again in the 19 th century attained a leading importance. It remained inferior to those of Germany, France and England, and frequently adopted suggestions from those countries. As there, so in Italy the Neo-Classicism was replaced by Eclecticism.

The centre of gravity of the architectural activity occurred in north Italy. In Milan Carlo Maciacchini (1818-1891) designed the monumental Camposanto (after 1865) with nobly treated buildings and porticos in the forms of the early Renaissance of upper Italy. At the same time Giuseppe Mengoni (1820-1877) began the grand gallery of Victor Emanuel (1865-1877) as an i intersection of two stately streets 47.6 ft. wide and respectively 639.7 and 344.5 ft. long. (Fig. 294). In the architecture of the facade resembling a triumphal arch and the internal facades, the forms of the Italian early and high Renaissance are employed beside each other. This gallery is the most important secular building of modern Italy. Giusebpe Balzaretti (1801-1874) selected for the Savings Bank (cassa di Risparmio) built by him in 1871 the rusticated architecture of the Florentine Renaissance palaces Strozzi and Riccardi (volume 2, Figs. 209, 246); Giacomo Franco for the church at Lonigo (1878) the basilican style of the early mediaeval churches of the 11 th

century, permeated by northern Romanesque motives. The two c celebrated writers on art, Camillo Boito (born 1836)and Luca Beltrami (born 1855), likewise appeared with notable architectural creations, the former among others with the principally Venetian Gothic Musicians' Home, the latter chiefly with the stately building of the well known journal Corriere della Sera, subdiwided by broad Tuscan pilasters between the great windows. To the recent tendency belongs the palace Castiglone erected by Giuseppe Somarugi, which is manifestly influenced by the Wagner school in Vienna.

For Florence the restoration and completion of the cathedral (volume 2, page 136) occupied the chief interest of the architects. Emilio de Fabris (1808-1883) erected the newly constructed Gothic marble facade in harmony with the campanile beside it in a masterly way. Thereby he found so much approval, that his bust was placed in the cathedral beside that of the first cathedral architect, Arnolfio di Cambio (volume 2, page 136). The Neo-Renaissance is represented by the charming Villa Lazzei of Giuseppe Boccini (1840-1901) in a stately classical example, combining the art style of Raphael with that of Palladio.

Rome first introduced a rich architectural activity in the eighties. This was dominated by the high and late Renaissance. As the most prominent work is regarded the Palace of Justice by Guglielmo Calderini (born 1845), erected after 1888 in a predominating Palladian style on a rectangle 557.8 × 465.7 ft., and further the Art Exhibition Building by Pio Piacentini (born 1846), strongly influenced by the Fountain of Trevi, and t the dignified Bank d'Italia by Gaëtano Koch, subdivided by three-quarter columns in both upper stories. But the great National Monument for Victor Emanuel in Rome, designed by count Giuseppe Sacconi (1855-1908), and only erected in the latest time, returns to a severe Classicism in its Corinthian porticos enthroned above a massive substructure.

Naples received through Ernesto di Mauro its Gallery Umberta (1887-1891), which however does not equal in effect its model, the milanese Gallery. On the other hand the new University by Pietro Paulo Guaglia (died 1898) is a monumental work in a modern late Renaissance style. In Palermo Giov. Batt. Filippo

Bariles (1825-2891) erected in the Theatre Massimo, which was completed by his son Ernesto Basiles (1897), one of the best arranged, largest and most magnificent theatres of the world. In the international competition for obtaining plans for thes building, Semper also participated as the judge of awards.

In SPAIN the Neo-Romantic style set in with the restoration of mediaeval churches. In the church di Nuestra Senora de Alocha at Madrid, which was erected in place of the church standing there and torn down (after 1890), appeared a Neo-Romantic structure. The restoration of the Alhambra (volume 1, page 2 219) also gave an icpulse to the adoption of the Moorish style. The amphitheatre for bull-fights at Madrid, erected in 1873-1 1874 by Emilio Rodriguez Ayuso (born 1845) and Alvarez Capras, is in general kept within Moorish forms. Yet in general a late Renaissance predominates, already standing on the stage of transition to the Barocco style. It is represented by a splendid example in the Bank Hispano-Americano Building at Madrid, erected in 1884-1891 by Eduardo de Adaro (died 1906) in connection with Severiano de la Lastra. On the contrary the imposing Bourse at Madrid, that had the architect Enrique Maria Repulles as its creator, with hexastyle Corinthian portico and p pediment, in its entire treatment appears as a belated production of Neo-Classistic architecture.

5. Netherlands and Scandinavia.

After BELGIUM had separated from Holland and had been elevated to be an independent state (1830), under the wise government of its king Leopold I (1831-1865), to whom was largely due the intellectual and material development of the country, it entered on a splendid period, that had as a result an extremely rich and grand architectural activity. This at first continued in close adherence to French art, as in the Classistic epoch, and partacularly as far as the Romantic tendency appeared. In the course of the seventies, the Belgian architects s sought an art corresponding to their people by a return to the native Renaissance, and about the end of the century and earlier than in other lands, they passed ower to entire freedom f from all historical styles.

The first work of the Neo-Romantic style was executed by T. Fr. Suys the Elder (page 300), known to us as a classicist,in

the church of S. george at Antwerp (1848-1853), conceived in a still timid Gothic style. As an infinitely more mature creation appears the spacious and picturesque central building of the church of S. Maria at Brüssels-Schaerbeck, which was erected in 1844-1850 after the plans of Louis Overstraeten (died 1859). The architecture of the lower parts of the building s still remains in the Romanesque forms, but chiefly for structural reasons passes into an early Gothic in the dome.(Fig. 295). Joseph Louis Schaede (1818-1894) transferred the Gothic to secular architecture on the Bourse at Antwerp,erected anew by him in 1868-1872, whose vast hall he furnished with an iroo roof framework of wide span, and on the rebuilding of the railway station at Bruges, undertaken in 1877. In adherence to V Viollet-le-Duc was developed a school of architecture in Belgium, which with refined understanding executed the restoration of mediaeval buildings, also erected those of the picturesque marketplace in Brussels, and a great number of church and secular structures scattered over the entire country. Even the chief Belgian masters of this time, Poelaert and Beyeart (see below) were occasionally employed as Gothicists, particularly in church architecture.

But on the whole in Belgian architecture, the Neo-Romantic remained behind the Renaissance in influence and importance in the history of art. Suys the Elder had introduced the Renaissance with his still rather Classistic church of S. Joseph at Brussels (about 1849). On the new Bourse at Brussels (Fig. 2 296) erected by his son Leon Suys (1824-1887) in the years 1868-1875, the French high Renaissance appears in sharp development in evident competition with Garnier's Opera House. The principal work of modern Belgian architecture is the Palace of Justice at Brussels (1866-1883) by Joseph Poelaert (1816-1879). This building was erected on a ground area of 590.6 × 557-8 ft. at a cost of ten million dollars, and it exhibits the forms of an extremely massive Roman or late Renaissance, in which appear Egyptian, Persian, and even Assyrian motives in the terraced ascending architectural masses. In spite of the not completely organic architecture, the general appearance is overpoweringly grand. In the interior the statuary of the vestibule (Fig. 297) and the great waiting hall, whose dome rises to a

height of 318.8 ft., are architecturally the most important r rooms. In Antwerp M. Bens built the Flemish theatre in 1869-1872 in a noble French-Flemish high Renaissance; Louis Baeckelman the Palaee of Justice (1871-1875) in the style of the early French Barocco architecture. The gifted and learned Henri Beyaert (1823-1894) erected the National Bank in Brussels in a style still based on the French high Renaissance, but also employing Barocco and Louis XVI motives, then passing into the national Flemish Renaissance, in which he built the Belgian B Bank on the Central boulevard at Brussels and the railway station at Tournay. In this tendency there followed him the much employed J. J. von Ysendyck (1835-1911), also known as a writer on art by his book on old Belgian buildings, in whose picturesque city halls of Schaerbeek and of Anderlecht, the native Renaissance attained new life. The leading Belgian master of the most recent time, Henri van de Velde (born 1863, now Director of the School of Art Industries at Weimar), and Victor Horta already belong to the series of modern artists.

HOLLAND again adopted about 1850 its ancient native brick architecture with bands and members of cut stone, both on a mediaeval basis as well as in the forms of the Renaissance of th 16 th and 17 th centuries. The chief representative of Neo-Romantic tendency was Peter Cuypers (born 1827). He was the builder of a great number of churches, among them being the Herz Jeus church in Amsterdam and S. Jacobus' church at the Hague, that are both executed in the early Gothic style. He obtained high favor by his most important secular building, the Royal Museum in Amsterdam (1877-1885), in whose imposing external a architecture the late Romanesque forms are permeated by Renaissance motives. (Fig. 298). The same style was given by Cuypers to the main railway station in Amsterdam, completed in 1889. For the revival of the national Renaissance labored Gugel, influential through his position as professor at the Polytechnic school at Delft. His University at Utrecht (completed 1894) is a picturesque work in his early style. Somewhat more personally concerned and more animated by Gothic forms of arches appears the same on the charming railway station at Groningen, built by J. Gosschalk. The University there is a work of the Royal architect Vryman and adheres more closely to the

native art of the 17 th century.

Likewise in Holland at an early date prevailed the pressure toward an entirely free treatment completely independent from traditions. The new Protestant church in the Hague built by J. Verheul, already in the subdivision of the masses, in the aim for effect of the surfaces, and in the architectural treatment already passes over to the modern style. Entirely in this course worked Hendrick Petrus Berlage (born 1856), whose w works, like the earnest brick architecture of the New Bourse in Amsterdam, in the general effect and treatment bear a character visible at the first glance, still reflecting the native Romanesque.

357 In DENMARK, where Classicism had struck such deep roots and had already axhibited such rich fruits (page 302), the Neo-Romantic movement could but slowly find a form footing. Yet two larger Romanesque church buildings are to be mentioned, the c church at Holbak by Christian Hansen (page 303) and the church of Jesus at Copenhagen by J. Vilhelm Dahlerup (born 1836). L Likewise in secular architecture the Neo-romantic is represented by the University Library in Copenhagen by Joh. Dan. Herholdt (born 1818), built in Lombard-Romanesque forms with the addition of iron construction. Otherwise the Renaissance predominates in the field. Dahlerup with Ove Petersen (born 1830) erected the Royal theatre in Copenhagen (1872-1874) in the Palladian style. Also the Ny Carlsberg Glyptothek in Copenhagen (1891-1897), designed in 1888 by the first alone, with finely designed internal decoration bearing a Palladian stamp. But Martin Nyrop in his new city hall at Copenhagen (1892-1903; Fig. 299) returned to the native brick architecture influenced by the Netherlandish-German Renaissance (volume 2, page 317), to which he gave new life by original motives handled in the modern manner.

NORWAY received the first building of the Neo-Romantic tendency in the church of the Trinity at Christiana. It was erected in 1853-1858 after the design of the Hamburg architect A. de Chateauneuf as a Gothic central building on an octagon with four short cross arms and a dome. More closely to the national style of architecture adheres E. Norgreen's church at Bragernäs-Drammen (1863-1871), a three aisled basilican structure

with choir, internal wooden supports, horizontal wooden ceiling and external stone construction in a Gothic recalling the German Hanoverian school. The heavy church of S. Johann at Christiana erected by George Bull in 1878 expresses a north G German basis. The Renaissance was introduced by the German architect Heinrich Ernst Schirmer in the Art Museum in Christiana built in 1879-1885. Henrik Bull created the National theatre there (completed 1899) in a peculiar and purely personal expression of form, not happy in all points. The endeavors of the younger Norwegian architects to bring into honor again the wooden style of architecture, so well adapted to the climate, are to be designated as very pleasing. H. Munthe gave a magnificent example of this, worthy of imitation, in the native Holmenkollen hotel near Christiana.

SWEDEN received by the National Museum at Stockholm built by F. A. Stüler (page 285) its first architectural monument of t the Neo-Renaissance, recalling rich Venetian models. After h him a series of Swedish architects worked in a purely eclectic manner, not without a certain endeavor to cause recognition of a personal estimation of historical forms. Emil Langlet (1824-1898) became known to a wide circle by the erection of a great number of entirely central churches arranged according to the requirements of Protestant worship. Isak Gustav Clason (born 1856) was the creator of important residences, erected in different historical styles, among which may be mentioned the palace of count Rosen in the Barocco style (1898), and the palace of count Hallwyl (1899), approaching in the detail forms to a Venetian late Gothic, both in Stockholm. Carl Möller erected the stately church of S. Johann there as an early Gothic cross basilica with high facade tower. The principal work of Swedish architecture in the second half of the 19 th century is the group of buildings of the Legislative palace and the Reichs' Bank, built near the Royal palace and dominated by a great square dome(about 1900). It was executed by Aron Johansson in a showy and very luxuriant French late Renaissance. Erik Lallerstedt, the creator of the church of S. Peter at Stockholm, entirely differing from the conventional form, and Ferdinand Bobor (born 1860), the builder of the city electric station there, which by its novel treatment and particularly by its

mighty arched portal arouses attention, are the Swedish path-breakers for modern art.

6. Eastern Europe, America and the Colonies.

The great movement proceeding from western Europe with the aim of reviving the architecture of the middle ages and of the Renaissance extended its waves also beyond the eastern frontiers of germany and of Austria. In the western provinces of R Russia, principally dependent on German intellectual life, in Poland, the Baltic provinces and in Finland, architecture took a development similar to that in Germany. The Neo-Classicism after the middle of the 19 th century was followed by the Neo=Romantic and Neo-Renaissance.

In Poland, Cracow formed the centre of the art life. There Feliks Ksiezarski (1820-1884) erected the university in a tasteless Gothic; Franz Macynski the Art palace in freely selected forms of the high and late Renaissance. In Riga originated the Gertrude church (1867), the Catholic Franziskus church ((1892), and a great number of secular buildings in the Neo-Gothic style, the Bourse built in 1855 after the designs of Ha von Bosse in Venetian, and palace Ritterhaus (1868) in Florentine Renaissance. In Helsingfors the Renaissance is represented by palace Ritterhaus (1858), the Gothic by the new Lutheran church (1893). The later generation of architects in the Finnish capital, under the leadership of A. Lindgren, H. Gesellius and E. Saarunen, who together erected the weighty buildings of the Fire Insurance Co. Polijola in Helsingfors, and to whom adhered other pupils of the Polytechnic school there, labored energetically in the modern endeavor to obtain entirely independent modern style forms.

In Russia in the capitals of S. petersburgh and of Moscow, the Renaissance current coming from the West in the first half of the 19 th century caused an approximation of Classistic architecture to the Italian Renaissance, but from the Neo-Romantic a return to the ancient Russian art (volume 1, pages 198, 202). This was at first fonnected with Italian or mediaeval forms from the West, but later became ever more decided and s severe. The vast palace in the Kremlin in Moscow built by Constantin A. Thon (1794-1881) in 1839-1844 still stands on the

stage of the transition from Classicism to Italian Renaissance. On the church of the Annunciation at S. Petersburgh attributed to the same master, which is crowned by five towers rising like pyramids, Russian forms are balanced by Italian; on the church of S. Catherine of the Wosnessenski Monastery at Moscow are Russian forms with Gothic. The grand church of the Redeemer at Moscow erected by Thon and Resanow in truly Russian magnificence already exhibits the Russian style in its purity. Yet more strongly are its peculiarities exhibited on the church of the Kiew Lawra (1898) at S. Petersburg, and on the Expiation church in the summer garden there, even surpassing these. Of the more important later secular buildings, the magnificent Commercial Row at Moscow (1888-1893) created by Pomeranzew even exhibits a certain clarification of the Russian style by R Romanesque and early Renaissance forms. But on the palece of the Duma erected by Tschitschugow and on the New Historical Museum of Sherwood at Moscow, it is employed without restraint.

Into AMERICA the Neo-Romantic movement already found entrance before the middle of the 19 th century. In New York was e erected in 1839-1846 Trinity church in a very restrained style, but in 1850-1879 the cathedral of S. Patrick (by James Renwick) was built in a more mature Gothic. Likewise the Italian Renaissance is employed in the Library of Congress at Washington (188-1897), the Grecian, i.e., a Renaissance strongly approximating to Hellenism, on the Corcoran Gallery in Washington erected 1894-1897 by Ernest Flagg.

The amazing advance of the North American States after the civil war (1861-1865) led to a rich and independent development of North Acerican art. An entirely fruitful field of work
361 was afforded to architects in the commercial buildings, banks, structures for the great journals, hotels and not least in the residences, for the comfort and treatment of which in accordance with their own inclinations and customs, the well to do A Americans retained a high estimation in the haste and lack of repose in their lives. Grandeur and model arrangement are exhibited by such buildings. The vast acquisitions in construction led to startling undertakings, which celebrated real triumphs, not only in the cowering of colossal halls, but also in the "skyscrapers" rising to dizzy heights for the purpose of

the extreme utiligation of the building site. But the American architects not only master the architectural problems of planning and construction; they also give to their works since the last year of the 19 th century a peculiar and independent stamp corresponding to the architectural treatment. H. H. Richardson (born 1839 in New Orleans), educated at the Ecole des Beaux Arts in Paris, from 1866 an architect in New York, becae a path-breaker of the new American architecture. In his Trinity church in Boston built about 1875, he returned to the Romanesque style of southern France and of Spain (volume 2, page 44; Fig. 60), and imparted to it a powerful Anglo-Saxon-American virility. This church forms a landmark in the history of Amerisan architecture. On a great number of other public and private buildings by Richardson, the style introduced by him came into full development. He had already acquired a position determinative for the general appearance of modern American architecture. It is characterized on the exterior by an architectural grouping emphasizing the purpose almost recklessly, by a great preference for round-arched openings, but especially by heavy rustication appearing everywhere as a leading motive and sometimes developed in Cyclopean massiveness. In general he exhibits great economy in properly architectural subdivisions and architectural motives; where such are employed, t they always adhere to the Germanic-Romanesque world of form. To the commercial buildings is peculiar a certain upward tendency; besides mediaeval motives they also accept those of the Renaissance, but always in a free and powerful treatment.(Fig. 300). The isolated country houses chiefly exhibit broad comfort. The American wooden construction also again comes into use on them. He produced in numerous villas an extremely harmonious relation of the architectural appearance to nature. The internal treatment follows the same principles, as were d developed in the later English nouse. (Page 346).

The architecture of the colonies is entirely subordinate to that of the state, to which they are subject. Occasionally in the domains of the old civilized lands concessions are made to the racial architecture, even if with varying results. But t the public buildings serving for assemblages scarcely differ in their style treatment from those of the mother country.

(Fig. 301). The opening of the protected domains to European civilization even compelled the transplanting of European art to the foreign soil. It then follows, even if at some distance, in its entire further course during the whole political a and intellectual dependence on the art of the mother country.



IV. Architecture of the Present Time.

1. General Basis.

About the end of the 19 th century appeared in increasing s strength movements for reform in the domains of art, that soon led to a general movement in the sense of a direct opposition to the former artistic opinions. They are the result of that powerful transformation in the intellectual life of the peoples of central Europe, which had been prepared for in the literature during several decades. After the end of the fifties, new ideas, new problems for the world's opinions, commenced to powerfully influence the severely historical tendency of the literature. Schopenhauer's philosophy, particularly his work, "Die Welt as Wille und Verstellung", at this time made its way with elemental force in the widest circles of the cultured. Soon afterward followed Nietsche with his theory of the utmost possible elevation of the "I" and of the will to power, of the master's rights of the superman. In France appeared Zola with a magnificent exposition of his ideas in the service of the s social problems. Similar tones sounded from Norway in Ibsen's dramas, and in a particularly clear manner from Russia in Tolstoi's works. In the reckless and egotistic forward pressure of the intellects possessed by the new ideas, in the struggle for freedom from all fetters, in the denial of tradition and of opposition to the authority previously enforced, there burned a hot contest of minds. It occurred at a time, in which basis-destroyging transformations were completed in all scientific, technical and social domains, and the feeling of elevation above all former opinions filled in great measure science and technics. Ever stronger resounded the call, in literature as well as in the formative arts, to set out new in place of the old trees to be felled. It was realism with its mode of thought, chiefly creative from reality and actual observation, and naturalism in close alliance with it, and the employment required by it, of the sciences and arts, not in accordance with formal rules, but on a natural basis, which in the contest of opinions gradually won the victory over idealism. In the formative arts this realistic and naturalistic intellectual tendency appeared with a definiteness and sharpness, as h

had scarcely ever been the case. It was earliest expressed in painting and sculpture. In France Millet and Monet had broken the path for it in painting, and Meunier in sculpture; in Germany a host of artists of high purpose went the same way. In architecture, that by its entire nature required a longer time for obtaining new forms of expression, the new spirit appeared later. But it then expressed itself with greater decision, t than in the two sister arts. Already for some decades changes in the problems, in the external conditions and requirements of architecture had prepared the soil for it, and so changed the basis for its development, that it already of itself pressed forward to leave the track already retained.

The most important scenes of architectural activity, the cities, in the last quarter of the 19 th century had changed their entire architectural appearance. The reasons and the impelling forces for this lay in the fabulous advance in the industries and of the commerce developing parallel with them, as well as in the very influential transformations of the social conditions of our own time. The continued and increasing travel made the building of vast railway stations with colossal halls, great post offices and grand hotels,designed for hundreds of travelers, an unavoidable necessity. The plans for industrial purposes frequently extended over entire quarters of the city and gave to these a peculiar stamp. The central stations for light, water and power, to be erected in the midst of cities, already assumed modern forms on account of their p places in the view of the city. The buildings for commerce, the exchanges and the banks required a treatment expressing t their importance in the business world. Entirely novel problems in the treatment of interiors were proposed by the great warehouses and market halls of all kinds. The strong centralization of the masses of the people in the cities and the social conditions required buildings for vast assemblages of men and for their amusement and refreshment, such as society halls, concert halls, restaurants, cafes and the like; the satisfaction of the needs of education, extremely increased and in the largest classes, school houses of all kinds in quite enormous dimensions and with the best hygienic appointments. To these are still further added the likewise gradually becomong colossal

buildings for state and communal administrations for the public and the common benefit. In comparison with these architectural problems of churches, the chateaus and palaces, which previously formed the centre of gravity of architectural creation, pass into the background. It lies in the social and democratic spirit of out time, that the interest of the architects should now be devoted to the citizen's residence in a previously unknown measure.

The new problems of themselves led to new methods for their solution. The materialistic mode of thought, strongly promoted by industrialism and egoism pressed for an extreme utilization of space, time and technical means. The relation of support and load, as chiefly developed in the antique and the Renaissance, which had dominated architecture for centuries, lost its importance. The modern reinforced concrete construction made possible an extreme increased in the strength of the supports and a previously impossible in the weight of ceilings, so that men could advance to the widest spans of interiors. It brought a new statical condition of forces, which thoroughly transformed the esthetic principles of architecture. To this was added the almost unbounded enrichment in materials, such as were created from the abundance of the commerce of the world and were provided for architecture by the restlessly advancing manufactoring in numberless industnial products. These in part deeply important changes in the problems, in the bases and the requirements of architecture must of themselves lead to novel requirements in the artistic composition.

Their first result was the recognition of the unsuitability of the series of forms of the high Renaissance, before chiefly employed in secular architecture. The requirement already stated by Semper with farsighted views:-- "The solution of the m modern problem must be freely developed from the conditions given by the present time", now became a fact. But not in Semper's sense. He wished to solve the problem "with reference to those traditional forms, which during centuries had been d developed and retained as indisputably faithful expressions a and types of certain internal and structural conceptions".Men were now exactly opposed to these. The desire for individual and entirely independent artistic treatment expressed itself

first in acute opposition to the further employment of historical style forms; but it appeared but slowly and only after a strong contest with the conservative forces of architectural creation.

It is a well known historical fact, that great movements, w which had as a result a thorough advance of the nations in intellectual or artistic life, always went to the last extreme, which originated the most embittered strife between the best men of their time. But the decision of the questions in dispute did not result from definite principles, but in accordance with the actual requirements of the time. The survival of the fittest is an observed fact, not only in the contest for existence in the existince of nations, but likewise in the strife for the intellectual possessions of men, on which is perhaps based the entire course of civilization. Mankind is opposed to a principle in opposition to the spirit of the time.

But with the rejection of the traditional historical styles, individual forms suited to the period were not yet born, which could be set directly in their places. Sculpture and painting found new ways in direct association with nature. But architecture must first create its types. In the restless search a and striving after new forms, it was natural, that the most z zealous champions of modern aims should first go to the extreme, and give their requirements the rudest expression, before they were prepared to create new and permanent things. The oscillations of this movement now appear to have reached their greatest extent, and to strife for assured starting points. E Even in the circles of the boldest innowators already appeared undercurrents, supported by the conviction, that in the mere denial or reversal of the ground principles previously followed in architectural forms are not found new guides for a reasonable solution of modern problems, and that also in this way the spirit of the time obtains no generally intelligible expression. Slowly was now developed a clearing of the aims. But from the securing of a modern style in the sense, such as before this we have employed the conception of "style", we are still far removed. A uniformity of expression in form, a unified feeling for style is scarcely to be established. We even stand only at the beginning of a new development, and in the

sum of the phenomena, we can only recognize and follow definite similar causes, that give to modern architecture still an individual stamp, chiefly in the first stage of merely personal seeking and treatment, independent of tradition.

II. The Development of the Modern Style. *

** When we speak of the "modern style", we leave out of consideration in the following all still abundantly appearing works in the architecture of the present time, entirely or principally designed in the historical sense. We rather concentrate our attention upon those architectural creations of the most recent period, in which with a conscious rejection of the historical, a new conception is expressed in a new mode of treatment.*

It was natural, that modern architecture commenced with its first reforms, where the 19 th century exhibited the most apparent weakness. This in general had committed its greatest errors, that in the endeavor after correctness of style, it had subordinated the most natural basal requirements for every architectural creation, appropriateness in plan, construction and architectural form, and the resulting reasonable employment of materials to the architectural appearance. The modern architects now placed just these principles as the primary ground requirement in the foreground of their creations, and they emphasized these from the first to the extreme consequences. "The modern architecture of our time seeks to develop form and motive from purpose, construction and material". So says one of the most influential of modern architects, Otto Wagner in Vienna. "It must be also as simple as possible, to clearly express our design. These simple forms are to be carefully adapted to each other in order to produce beautiful proportions, on which almost entirely are based the effect of the works of our architecture". * # Appropriateness must be expressed in t the general appearance of the architectural work, as well as in all its members, if the same is also to produce a satisfactory effect in an esthetic sense. For beauty lies first in the internal truth of the structural organism, each separate part possessing a definite function and expressing it. Thereby the construction obtains a basal importance for the treatment. It precedes this as determinative therefor. The mode

of thought of the architect is permeated by that of the engineer. But the demand for innate truth and suitability is also based on the selection and use of the materials. To satisfy it in regard to these the architect must possess a thorough knowledge of the proportions of the materials, which establishes a practical treatment corresponding to these. With particular energy under the accenting of this requirement was reference made to the great transgressions of the architecture of the 19 th century, that in the imitation of the art of the ancients sometimes employed means directly calculated for deception, and not seldom impressed on the material employed, by t the aid of machines the most unnatural forms and colors. The form must now result with right consequence from the peculiarities of the material and a corresponding treatment with tools. The hand work therefore already merits the preference, since it alone bears the charm of personal creation, and should again be brought into honor; the machine must only act upon it, where this assures for the mode of producetion, the desired form corresponding to the nature of the material. All processes of technics must be adopted by architecture, so far as they afford means for a simpler solution, for a more intelligible and modern mode of expression. From new materials are to be derived new and beautiful values contained in their natural appearance, and particularly in their colors. The colors may generally be important means for producing harmony and concord in rich measure in the service of the modern art of interiors. On the contrary the ornament, even if it cannot be entirely omitted, must retire behind the essential obedience of the technical requirements, and particularly behind the esthetic effects contained in the materials.

** * Otto Wagner. Skizzen, Projecte und ausgeführte Bauwerke. Vol. 3. Heft 35. Vienna. 1906. Also see Joseph Strzygowski. Die bildende Kunst der Gegenwart. Leipzig. 1907.*

These requirements are not novel; Semper had already emphasized and thoroughly demonstrated them (page 323, 365), and likewise Ruskin (page 343); William Morris (page 346), who was absolutely a Gothicist, in 1859-1861 had based thereon his own house in Bexley Heath in England and his path-breaking industrial works, thereby producing a complete reform of the English

art industries. That was the conception of art of the architects standing in the front rank of the modern movement, which differs from that of the before mentioned artists, and which consists substantially in this, that modern architects desire to fulfil these ground principles with the utmost possible, or the entire exclusion of all historical style forms.

The beginnings of the modern movement in architecture may be referred to the commencement of the nineties of the last century. Already the first attempts permit the remognition of opposition to the art style previously employed, particularly of the high Renaissance; perhaps they proceeded rather from the opposition to the customary, rather than from well considered conceptions of historical styles. Certainly the endless repetitions of the form apparatus of the Renaissance in an inartistic,spiritless and frequently entirely displaced imitation produced an unequaled monotony of modern street views. One jolted over the ground principles of the Renaissance, the symmetry, the severity of the orders, over its entireorganism, but soon became aware, that one could not advance is this way, and therefore gradually passed over to entirely new forms. Thereby the artistic freedom was fully accepted, and no wonder if it at first put forth quite doubtful flowers. To novelty and individuality was much sacrificed at the expense of the beautiful; with crude and momentary flashes not infrequently commenced a bold play, yet the best balanced champions of the modern art tendency were assured of loud approval of the technical press served by them, as soon as they even brought something "novel" and not yet existing into the plan. In the rapidly living time the movement progressed mightily; about the end of the century, it had already comprised extensive classes.

In the year 1901, the artist colony, called by the art-loving grand duke Ernest Ludwig of Hesse for the free culture of modern art in his capital, opened its Exhibition on the Mathilde hill in Darmstadt. In a number of completedy executed buildings, arranged ready for use and occupation, among which the house for a single family occupied the most important place, the Darmstadt artists gave a view of their creations. The design of the general plan of the exhibition and the greater number of the buildings, as well as the superintendence of the

whole was in the hands of Joseph Olbrich, who was born in 1867 in Troppau, had received his training in Vienna under Hasenauer and particularly under Otto Wagner (page 335), and by journeys in Italy and France had become acquainted with architecture in those countries. In the principal catalogue Peter Behrens (born 1868) gave in the introduction, to which he prefixed the description of his own house, a kind of artistic programme for architecture in general, and particularly for the plan and arrangement of his house for one family. This exhibition aroused vast attention; it denotes a landmark in the development of modern art on the continent. Thenceforth the new movement obtained fixed aims and definite guide lines; in the course of the succeeding decade it won, not only in architecture, but a also in the art industries an incontestable victory over the exclusively backward-looking style tendencies of the preceding century.

Until now the modern style has chiefly appeared on those buildings, which presented new problems for solution. In the f foreground stand the structures for the industries, and indeed first those for the production of goods, the manufactories, a and then those for the sales, the warehouses. The erection of manufactories previously belonged almost exclusively to the p problems of the engineers. In them already for purely business reasons, the basal requirements of the modern tendency, the suitability in plan, construction,and the employment of the m materials, came to a severer execution; these demands formed the fixed and determining basis for the plans and calculations to be made by the engineer. The manufactories also had earliest developed the method so strongly affecting the structural organism, of concrete reinforced with steel. The new conception chiefly expressed itself on them in the abandonment of the former structures like barracks, in favor of architectural groups; for men saw the grand effect here desired, no longer in the long lines of facades with many stories, but rather in the alternation of separate structures, tasteful in mass, height and treatment.

An entirely novel form was received by the department store. For this was required the most advantageous utilization of the interior for the purposes of storage. exhibition and sale, for

a convenient, overseen and easily controled access of the public, a corresponding admission of light and air, and a thorough utilization of the enclosing walls for the purposes of lighting and show. Consequently for the facades was developed a novel architectural scheme. The proportion of the wall openings to the wall surface fixed during the Renaissance period proved itself impossible. Especially in the lower stories, the windows must be made as large as possible, and thus the remaining wall strips left as supports must be reduced to the extreme limits possible. Steel offered a structural material appropriate for this, yet not by itself alone, but already on account of its small resistance to fire, within a casing of natural or artificial stone. For this concrete mixed with cement, sand and gravel afforded an excellent material, since it possessed the valued property of combining with steel into an organic unity of high resistance. The entire surface of the facade was then resolved into piers, and at the heights at which these had to receive the internal beams and their loads, they were connected by horizontal beams of reinforced concrete, thus obtaining a skeleton construction, which left entirely f free the surfaces lying between the piers and the horizontal beams. If as generally the case in the upper stories, it was not desired to extend a single window in these openings, then could be arranged a subdivision by tracery. Thus was developed a mode of construction, which is closely allied to the Gothic buttress system (volume 2, page 78). But it appears here entirely as an independent solution of one of the most important problems of modern architecture. In its ground lines it is found in the business office building erected by R. Norman Shaw in 1872, generally known under the name of New Zealand Steamship Company in Leadenhall St. in London (page 349; Fig. 292). But it was first developed in Germany into a consistently executed architectural system. The actual creative building is the warehouse (department store) Wertheim in Berlin, built in the years 1896-1900 by Alfred Messel (born 1853 in Darmstadt, died 1910 in Berlin), a pupil of H. Strack (page 286). The Gothic keynote is here apparent at the first glance. In the details of the main facade, besides purely novel forms and Gothic motives, are employed those of the Renaissance and the

Barocco, but which produce an entirely novel impression, since they are detached from their original organism, and here must assume entirely different functions. The facade toward Vossstrasse represented in Fig. 302 and executed in the year 1900 has chiefly Gothic forms of detail. In nearly all the larger cities department stores have since originated, on which the new type is developed in a model manner and not rarely with an entire rejection of historical forms. An extraordinarily advanced example in the opening of the wall surface between massive piers is presented by the facade 249.4 ft. long of the department store Tietz in Leipzigerstrasse in Berlin, designed by Bernhard Sehring (Fig. 303).

The architectural system of the department store was also t transferred to the other business buildings of the larger cities. Indeed in most of them it is not carried out with entire consistency, since as a rule mreat openings for shop windows in the wall are only necessary for the lower, or for the two lower stories, while the upper stories are used for office or residence purposes. Therefore here is found instead an approximation to the architecture of the dwellings built in blocks. The division into rooms permits and requires broader wall piers between the windows. The need of light and air and the most favorable view of the street here leads to a projection of certain wall strips, or of all lying between the piers in the form of prismatic or segmental surfaces, or even to the insertion of a series of windows occupying this entire width in each story. Likewise for this R. Norman Shaw gave a model in h his New Zealand Chambers. (Fig. 292). On the continent Martin Dülfer (born 1859) created in the Office Building of the Allgemeine Zeitung in Munich, erected in 1900-1901, a prominent and much approved work of this kind. (Fig. 304).

Next to the buildings for industry, the citizen's dwelling indeed occupies the most prominent position in modern architecture. Without doubt the English, and besides this also the l later American architecture, have here exerted a mighty influence. Here as well as there, to afford free access of light and air, as a building site is chosen a garden, which enjoys particular attention in plan and maintenance. Therefore for the larger cities are developed villa colonies outside the in-

internal domain of the city. The grouping of the rooms follows the requirements of suitability, convenience, hygiene and the individual needs of the family, without permitting the consideration of the treatment of the facade to control. The central point of the house is formed by the hall or vestibule (p Spage 345); next it are arranged the separate chambers and the living rooms, so far as the latter (particularly the kitchen) are not located in the basement. For obtaining sleeping rooms, which will be entered by the morning sunshine and living rooms in the best location with regard to the sun and the outlook on the landscape, great care is taken. Broad bay windows and alcoves enhance the convenience of the rooms and give them a homelike character. The admission of light is so regulated by the arrangement of the windows in reference to their position and form, as they seem most suitable for each room, according to its purpose, and the feeling of the interior is favorably influenced. Likewise the positions of the doors result from careful regard to these. By means of terraces and balconies care is taken, that in winter sunny and free places and cool ones in summer are at command, and that a certain connection with the garden is produced, without necessarily leaving the house. On the exterior the modern dwelling represents an entirely new architectural view. The earlier and mostly common geometrical box form is dropped, and almost invariably symmetry as well; the entire mode of solution of the ground plan compels a very free treatment of the architectural masses and an outline with animated movement. Even on these residences in which the rectangular ground form is retained, the arrangement of the doorways, windows, bay windows and the forms of the roof produce a novel impression. The portals preferably extend externally, in order in a certain sense to invite comers to e enter, and to already afford shelter from the weather outside the doorway.(Figs. 305, 309). The windows have chaged their previous proportions of breadth to height. They are often arranged as horizontal rectangles and preferably in a series beside each other. The roof cornice terminates the facade, sometimes with a horizontl projection casting a deep shadow (Fig. 313), sometimes rising like a curved gable, and particularly so when attic chambers are arranged with windows in the enclos-

enclosing walls. (Fig. 314). The uppermost window openings in this case generally have freely outlined forms. (Fig. 304). T The roof attains a previously unknown importance; it is strongly emphasized as protecting and warming, a hood carefully terminating the house at top. Well protected dormers are treated in the most diverse forms and give it a friendly appearance. Likewise the chimneys, indicating an abundant care for the warming of the rooms, project from the roof and are included in the general view. These frequently appeared as neglected in the organism earlier common. The treatment of the vertical motives acting in the bay windows and piers presents no difficulty to most modern architects; they insert these directly and simply stop them below the projection of the roof, undisturbed by the "suggestion of the forces". A technically well executed rough plastering, in which modern architecture finds great pleasure, combines the frequently subdivided architectural masses into a unity, or where animation of the surfaces is desired, affords an alternation of light and dark, or of rough and smooth surfaces. What is still lacking to the external appearance, it is sought to attain by a tasteful coloring, also particularly taking into account the surroundings. In Germany the family residences erected by the Darmstadt colony for its exhibition of the year 1901 are the earliest consistently executed buildings of their kind. Fig. 305, the Keller house in Darmstadt, designed by Joseph Olbrich, gives a characteristic example of this.

Yet more strongly, directly and permanently is expressed the influence of the Darmstadt artist colony in the internal decoration and arrangement of the house. Each room receives a treatment in accordance with its purpose, which extends not only to the walls, doors, ceilings etc., but also to the furniture, rugs, hangings and all accessories. In order to make possible a unified and connected decoration, these arrangements, which by their nature are not to be treated as movable, thus especially the furniture chests and wardrobes for storage are mostly treated as if built-in or otherwise are permanently connected with the wall. Each separate room is harmonized in a carefully selected color tone, also calculated for its special purpose of occupancy, as well as for a harmonious and effective variety

375 in the sequence of the rooms. By the monochrome wall hangings of cloth or paper with inconspicuous pattern, over which the eye passes without taking interest in the details, a very quiet harmony is produced. Aside from the introduction to a great extent of hygienically favorable and durable linoleum covering, the floors have experienced slight changes. On the ceilings prevails gypsum plastering with recessed panels and coffers, already on account of their construction in reinforced concrete; their subdivision follows with reference to the greatly preferred electric lighting fixtures, that are arranged at several points and diffuse a uniformly distributed light in the room. The form treatment of the furniture exhibits an entire freedom from tradition; it even goes so far, that the different articles of furniture are constructed entirely with presuppositions, and as if we were at the primitive beginning of the art industries. Chairs and tables, which for centuries exhibited in general the same forms, now receive new forms, which are indeed frequently surprising in their self-evident suitability. The endeavor to reject everything inorganic and to create a unified and simple whole leads to a thorough rejection of ornamental superfluities. In the ideal treatment of the ground form, the rythmic movement of structural guiding lines,
376 that give a living expression to the esthetic problems of the parts of the equipment, appears the best ornament to the modern artist of the interior. The beauty and genuineness of the materials, a pleasing color treatment of the same with rich u use of all architectural products, particularly of the modern glass and ceramics with a model execution, on which modern art industry looks with justifiable pride, give artistic completion to the arrangement. Our Fig. 306 presents a view of the h hall in the Glückert house at Darmstadt, that was designed by J. Olbrich and executed under his supervision. Fig. 307 is a design for a room by Patriz Huber, who unfortunately departed too early from this life, and that had created in the Darmstadt colony a series of harmonious interiors. The design is characteristic for his arrangements of interiors, and likewise for the internal art of the modern style, as this developed i itself, chiefly under the influence of the Darmstadt artist c colony during the first years of the 20 th century. The Exhi-

Exhibition of Art Industries held in Dresden in 1906, which p presented a great number of modern interiors of every kind, already permitted the recognition of a return to more quiet lines (Fig. 308, a dining room by Bruno Paul).

Among the public secular buildings, chiefly the school buildings derived rich advantages from the innovations introduced with the modern style. In them the requirements in regard to the dimensions of the length, width and height of the class rooms, the proportion of window area to magnitude of the room, and particularly the forbidding of openings in the walls before and on the left of the pupils, under the old facade system based on symmetry of the whole and of its subdivisions frequently presented great difficulties for a satisfactory solution. Freedom from the compulsion to a regular treatment of the facade, mostly based on the use of the antique orders, the natural development of the ground plan and structure only in accordance with the location and form of the building site and the programme of internal requirements, the flexibility in the arrangement and form treatment of the windows, the desired alternation of large closed surfaces witt those opened by rows of windows, led comparatively soon to a definite type of school building, that in reference to its very apparent suitability and reality belongs to the best acquisitions of modern architecture. On the contrary, the city halls were relatively little affected by the innovations. The modern cities indeed did not in general fall behind in the expression of their power a and a grand conception of their problems, or in participation in the artistic interests of the entire people; they show this by the founding and zealous fostering of city museums of antiquities and of art, among others. But so far as it concerns the city halls, generally the citizens' pride in the native art, the regard to the historical presumptions of the city, a and in connection therewith the consideration for native motives, especially for those of the German Renaissance held the supremacy over the endeavors of the modern art, entirely lackin presumptions. But the new spirit then is expressed in the picturesque grouping of the architectural masses about a tower, happily inserted in the architectural mass, in the omission of symmetry and in the freedom and independence of the forms.

Likewise the other public secular architecture, so far as it relates to the evolution of a monumental architecture as an expression of a definite circle of interest, influence and power, was but slightly fertilized by the modern style. For the columnar architecture of the Grecian and particularly of the Roman antique, corresponding in such a high degree to this problem, no perfect substitute has been found. The charm of the novelty of a pier system arranged in any manner, the alternation of flat wall strips with those hollowed inward or swelled outward and the like does not suffice for this. Therefore the a architects devoted their attention chiefly to the most impressive treatment of the portal, which attracted the eyes of observers to them. J. Olbrich gave a model for this in the portal of the Ernest Ludwig house in Darmstadt. (Fig. 309). For the later time reference may be made further to the portal of the City Art Hall at Mannheim erected by Hermann Billing. (Fig. 310).

Church architecture on the whole appears still reserved with regard to the modern movement, indeed that of Catholicism more than that of Protestantism. The requirements of the service have not changed; the Catholic church architecture had already created architectural forms in the preceding periods, that entirely corresponded in purpose to the established requirements, while the much younger Protestantism has not yet attained to a typical solution of the problem in its church architecture. Therefore its problems lie nearer to modern endeavors than those of Catholicism. Yet there is manifested in the new buildings of churches for both confessions an inclination toward freedom from retaining a fixed scheme in the proportions of the interior and a stronger striving for unity of the interior. The unrestricted sequence of the room and the freer position of the tower frequently compels a picturesque effect enhanced by the lack of symmetry, such as appears in the (Protestant) church of the Redeemer in Stuttgart, built by Theodore Fischer. (Fig. 311). The ground plan of this church is that of a rectangular hall with a side aisle and a gallery, with a semicircular apse. While the architecture here in general also exhibits reminiscences of the early Romanesque middle ages, Otto Wagner passes over to entirely free forms in his (Catholic)

church of the Lower Austrian Provincial Hospital and Asylum
379 in Vienna. (Fig. 312). It is a domed church with a Greek cross plan with the front arm lengthened by the addition of a vestibule. The primitive plan appears here in a modern mode of construction, chiefly composed of steel and copper, and in an entirely novel architectural exterior. On this Wagner embodied the ground principles of suitability to purpose, truth in materials and durability in the most thorough sense. As he says in the explanatory report on the design prepared in 1904; "the materials employed for the erection of the building are evidently the best conceivable, and thereby regard is paid so far as possible to the requirement of eternal duration, inseparable from architecture". The surfaces of the facades are faced with marble slabs 0.79 inch thick, that are held by bond courses 11.81 inches high and 1.58 inches thick. The latter are fastened by copper heads left visible and screwed on steel anchors passing through holes in the marble slabs and fixed in the walls. (The same method of covering was chosen by Wagner for the Postal Savings Bank in Vienna, built in 1904; Figa 315). The construction of the drum and dome is entirely executed in steel covered by stamped and hammered copper sheets. The strong emphasizing of the system of incrustation determines the e external appearance, but also lessens the impression of the powerful and the monumental, since the covering conceals just those parts of the construction, which have to take the statical functions of support and bearing.

The architectural treatment of the details permits the distinguishing of two main currents in the modern movement. One of them proceeds from the basis given in the historical styles, while the other is directly connected with them. On the part of those architects, whose art designs are inclined to a bold
380 and nucleate treatment, and for such buildings, that according to their purpose should express force and stability, the early mediaeval forms enjoy a certain preference. But where a rich form expression is desired, the late Gothic, the Barocco, and particularly the Biedermeier style, whose art tendencies exhibit so many tendencies in common with those of modern times, (page 269) form the basis for a new creation, to be developed further. The adherents of this tendency have a strong support

in the animated interest in again securing a permanent native art, extended throughout the largest classes.

The other current of the movement in a more restricted sense "modern" artisti decide for an entirely uninfluenced and independent treatment of the details. Yet these are still not united in their aims. A portion of them is completely permeated by the mode of thought of the engineer, who erects buildings for the purposes from a purely utilitarian standpoint. They see in the direct effect of the form for the purpose and in t the accenting of the construction and of the character of the materials, the most important and most satisfactory esthetic moment of the architecture, and therefore reject all ornamental decoration in the most thorough manner. There is expressed herein the reaction against the art conception of the preceding period based on ornamental richness. Doubtless the architects engaged in this direction, who are not unjustly designated as "Puritans", thereby acquired high merit for leading modern architecture into sound paths, that they required a strict purification of architecture from all superfluous accessions and carried this out on their buildings.

Opposed to them is another group of architects, who see the principal attraction of their works just in free decoration by ornaments kept entirely modern. These are chiefly guided, not by regard to structural development; they rather consider the facades as surfaces, that may be decorated by correct thought. Not seldom are entire facades dominated by ornamental decoration; even the construction and the doors and windows are arranged accordingly. Otto Wagner, who is such a temperate leader of the new school in Vienna, in regard to the employment of ornamental forms, on his Business Building in Wollzeile (Woolen Row) in Vienna uses this kind of surface decoration for animating the facade, monotonous on account of the uniform distribution of the windows. (Fig. 318). The decoration appears as a single covering hung over the entire front from bronze lions' heads beneath the main cornice. But the ornaments are still modestly arranged within the definite network of the windows without reference to it. An infinitely greater importance is assigned to them on the Business and Apartment Building in Schadowstrasse in Düsseldorf built by G. Wehling in 1899 and

represented in Fig. 314. Here not only the form of the windo-
ws in the uppermost story, but also the entire termination of
the facade is dependent on the lines of the ornaments. The up-
per story no longer has any organic connection with the subst-
ructure. This facade certainly forms an extreme in the style
tendency designated. Its most fruitful field is found in pri-
vate architecture, where the need of decoration is less suppor-
ted by art and esthetic criticism. To individual character a
and artistic caprice is thus opened a fied for the freest act-
ivity. There originate buildings in not a few cases, such as
one was previously at most accustomed to see in exhibition ha-
lls, which were only erected for temporary purposes and by th-
eir entire nature were desired to produce effects attracting
attention by the simplest means. But in the final result, su-
ch a procedure in "architecture" must lead to anarchy in style,
that certainly does not further the obtaining of fixed artist-
ic ground principles for the architectural creations of our t
time.

The two tendencies here mentioned denote the extremest limi-
ts of the modern movement. But most architectural creations
of our time spring from a conception, that retains the middle
line and according to the predominance of the personal art im-
agination or the kind of architectural problem sometimes turns
more to one or the other side. If one looks over the architec-
tural forms of the details of modern buildings in their entire-
ty, then the most striking novelty lies in the almost complete
abandonment of window architecture. Enclosures of the windows
in the manner in which the Renaissance and the Barocco treated
them, are almost entirely omitted. Occasionally are found sp-
lays and cavettos with mouldings in a manner similar to that
employed on secular buildings of the middle ages. In the mod-
ern art, the windows are properly only openings, that result
from the structural framework itself, or which are cut at ple-
asure in the wall surfaces. Otherwise the architectural struc-
ture as a rule only retains from the entire subdivision the b
base and the principal cornice. The division into stories by
belts is rare; only exceptionally is this still emphasized.
The treatment of the detail forms on the bases and capitals of
columns and of piers, on the portals, bay windows, main corni-

cornices and crowning members is entirely individual. Thus f for example, Otto Wagner treats his members entirely in the naturally appearang and technically wrought form of the solid materials employed. We here see the plane surfaces composed of materials, that are sawn, cut or rolled, that are carved in metal, hammered, punched and the like, beholding the whole composed of numerous separate rigid forms (Fig. 312, 315). But Van de Velde forms his members as if they consisted of a soft and plastic material, which at the intersections and endings, and particularly where pressure and resistance should be expressed, grows out into knob-like forms, recalling the structure of bones. With the requirement of consistent truth in materials for the mode of formation, this cannot certainly always comply.

According to the strict conception of the modern architects in the architectural treatment of the buildings, the ornament only possesses a justification in so far as it is serviceable to the clarity of the architectural expression, thus indicating the statical function of support or burden or the subordinate effects of definite stresses. The same requirements were also already **determinative** in earlier periods, particularly in the best times of the Grecian antique and of the Gothic for t the employment and treatment of the ornaments. Put modern art seeks to satisfy them by entirely novel means. likewise in t this are to be distinguished two tendencies. A portion of the architects see in the course of the lines and in the tasteful alternation of abstract forms, whose basis is formed by a non-existing course of lines, consisting of geometrical interlacings or repeats or entirely free, with a color treatment forming the chief moment. (Fig. 316). The other tendency takes its ornamental forms from nature, and particularly from the plant kingdom. Its forms are in part freely conventionalized, so t that the natural models are no longer recognizable (Fig. 317), and in part are reproduced with an acute accenting of characteristics. Not only the forms of leaves and flowers, but also the roots, the branches, the form of the stem and bark, the junctions of the twigs and buds are thoroughly studied and employed in accordance with the legitimate manner dictated by their functions in nature. In decorative painting liwing bei-

beings further play an important part, particularly fishes, b birds, lizards, frogs and the like, and even landscapes. If the use of living objects in ornament chiefly manifests the enjoyment of nature, then landscape motives only serve substantially for the production of harmonies. For the manner of their use Japanese art becomes a model. The turmoil of the waves, the cloud band (volume 1, page 49) appear in a very free conventionalization, animated by plant and animal forms of all kinds. For example, we see here the swan, that sometimes moves among animated waves (Fig. 318), sometimes swims toward us from the windings of a watercourse bordered by reeds; there t the forms and the landscapes are so simplified in the course of the lines and the colors, that the model at most may be recognized in the outlines and in two or three ground colors. J Just for this sort of observation of nature has Japan given valuable suggestions. Modern plant ornament has the advantages of great diversity and mobility, with evident clarity and simplicity; it has an extraordinarily fruitful effect on the style of decoration, particularly on glass staining, ceramics, the mosaic arts, and on all the minor arts, giving new life to them. And yet it may not be satisfactory as versatile, since the general loss of rythm, the proportions, the contrast and the symmetry, on which the existence of the ornament is based, are not always fulfilled. Therefore appears in increasing measure the inclination to adopt historical motives capable of development, especially those of mediaeval art, of the Barocco, and of the style of Louis XVI, and to give them a modern life.

Likewise architectural figure reliefs enter new paths. The classistic architectural sculpture, petrified in conventional lack of expression, frequently only loosely connected with the construction, must give place to a realistic tendency. Not t the classical repose but movement, as required in the representation of labor, is here expressed, and indeed in a conception of the object and its material. This of itself led to a treatment allied to the Barocco. The Barocco figures are tastefully introduced in the modern architectural form in their composition and development, and enhance its grand effect. Certainly the appearance of the superman here leads to absurdities; but these are not seldom to be placed to the account of a

less happy mode of conventionalization, that the powerful emphasizing of the characteristic strives for at the cost of the details. Yet even the modern reliefs also in the better works obey the ground requirements of great simplicity and self-evident means, with a suitable subordination to the great lines of the architecture, which is to be accorded to them as a special merit.

Decorative painting likewise has freed itself from most traditions and goes its own way, even if it does not proceed divergently from ancient oriental influences. Characteristic of its conception is the exclusion of deceptions in relief and in perspective. Painting rather seeks to treat the wall as a surface in accordance with its purpose of enclosing the interior, and therefore it rejects the polychrome treatment in favor of two or three carefully harmonized colors placed beside each other. This most plainly appears in glass staining. Puritanism requires great simplicity in the ornamental and figure painting of rooms. Only in the most recent time has it again prepared itself for an advance.

Further mention of the prominent creations of leading architects, as they were given in the earlier chapters, must be omitted by us. For an estimate of their places and importance in the history of architecture, it would be difficult to secure a fixed standpoint already at this time, from which might be further observed with a comprehensive view,objects and appearances not yet come to rest, and to objectively decide on t them. Also there indeed scarcely exists an opportunity for t the enumeration of further evidence for the preceding statements; let one but attentively observe the modern buildings, as they are erected almost everywhere, and he will find an abundance of examples.

The modern movement takes in architecture in nearly all civilized states the same development; but it found in Germany a particularly favorable soil. If one looks over its previous acquisitions with a scrutinizing eye, then is presented to us a varied picture of strongly pulsating life. Modern art has given to the youthful artist world the strongest impulse toward free and joyful creation. It also seeks to permeate our e entire culture and all classes of society. Not only the impo-

imposing house of a nobleman in a villa suburb, but also the simplest dwelling in the modern workmen's village receives from it an individual stamp. Yes, perhaps it is just the worker's house, that derived the greatest benefit from the regard to extreme suitability, convenience, adaptation and durability. The sharp accenting and consistent carrying out of the fundamental requirements for the architecture, freed from the formal compulsion of traditions, in its permeation by modern technics, introduced an advance, most highly important for the evolution of architecture, which first of all is recognized in the entire transformation of certain architectural types, and indeed in a sense required by its purpose. Also we now already have a greater number of modern architectural works to indicate, w which as an artistic entirety merit our full consideration and wonder. But otherwise in the flood of phenomena and from the purpose of the culture currents of our time may not be crystallized a consistently developed art conception and art expression. The haste in seeking and striving for new forms produced such disquiet in art taste, that today is rejected, what only a few years since caused astonishment as a great artistic work. We shall only enter safe paths, when architectural creation is led by ground principles, which besides purely practical aims, at the same time presents a fixed and unified artistic programme. Indeed in every time of transition has not been wanting a wonderful mixture of styles and bold new forms, which have subsequently shown themselves to be without result. But in t the older forms was required a positive scale, which -- and we must not deceive ourselves concerning this -- is lost with the complete freedom from the art of the past desired by modern a architects. A substitute for this is not given by the guiding lines derived from the requirement of suitability, structural truth and genuineness of materials. With the fulfilment of t this requirement in ganeral the interest of the engineer in h his buildings is exhausted, but not that of the architect, who is at the same time an artist, or should be one; besides this and according to the purpose of his architectural work, he yet
32 seeks substantially for the impression of comfort, of joy in existence, of prosperity and sufficiency, and to produce the feeling of greatness, power, dimensions, elevation, earnestness,

cheerfulness, magnificence, charm and the like, which as a rule can only be attained by correspondingly beautiful effects of his creations. But purely beautiful things do not result from the engineer's technical satisfaction of practical needs. Just as little the prominence of construction and of the material can be in the esthetic sense the chief purpose of any kind of "artistic"creation. Technics and materials are no creation, but only conditional factors, that serve the artistic p power of production, the active will as means for the purpose of beautiful treatment. We have earlier seen, how among the Egyptians the vast pressure toward monumentality created the technics required for this activity, how with the Greeks the very refined art feeling developed into a glorified orderliness the construction for the embodiment of its formative ideas, how the Romans in accordance with their enlarged circle of civilization and their consciou power extended it for their needs and even carried it to grandeur, and how the middle ages embodied its art will directed toward the spiritualization of t the material in technics worked out to the last result. Technics only afforded the means and methods for the physical production of art works, but never a starting point or leading f factor for the power of artistic creation. This subordination of technics to art will is expressed even more sharply in the different periods, the greater the maturity of their culture. In the culture stream of our present time, that is so impulsive and so rich in new purposes, we may at least hope to be able to develop a striking style and a permanently satisfactory expression. If we desire to advance, we must give to the artistic primitive force, to the innate in us to beautiful treatment, that aims and guides, that come from the maturity of our culture, and we must advance with the progress of the spirit of the time in art life as well. Besides and with the extremest fulfilment of the problem in regard to purpose, technics and material, of our buildings, we must also seek to give them a beauty corresponding to their purposes, a beauty in which t the mode of thought of our time receiwes a likewise characteristic appearance, as was the case in the earlier centuries.

The seeker for beauty in architecture, perhaps more than in any other domain of art, must be guided by clear processes of

thought and by fixed and lasting conceptions. But by the complete rejection of traditions, these would renounce their most secure starting point and support. Likewise in art are laws, that continue permanently, that can just as little be lost, as in the experimental sciences; the neglect of these laws can only result in a restriction in the natural course of developme-nt. Modern art is only one link of the chain of culture extending back to the earliest epoch of human intellectual life a and continuing through thousands of years. Like each preceding art style, it is the product of a long development; this d development cannot be carried further consistently, if one does not know the way in which it has come, if he must in a certain sense again start from the primitive condition of the formative arts, and wishes to reject the extraordinary wealth of experience and of the power over form, which the culture of e earlier centuries has left behind. Not by the denial of the importance of tradition, not by the reversal of its ground principles, but by a conscientious examination of its acquisitions, in what manner these may be revalued and cast into niw f forms, as this occurred in earlier times of transition from one art style to another, shall we succeed with assured aim in grasping the problems of our time, whose entire world is bound by numerous cords to those of the past epochs of civilization. This examination indeed must not limit itself to a formal comparison of styles. Only the genetic method, following the growth and the development, in order to understand the completion, which is indeed native in all domains of research, can here lead us to the aim. The deeper penetration into the history of the evolution of architecture gives us the most valuable indications for a resultful development and clarification of the style feeling; it warns against evil outgrowths, produces tolerance of amateurs, and is only opposed to looseness of style; it principally impels observation and criticism, and thereby arouses the consciousness of independent creative abilities; it forms, what is indeed the most important, good taste seeking for beauty, which also in architecture denotes, and must denote the truly creative force. In bringing out a historically founded understanding of the present time, we shall best assist in a permanent further development of art, corres-

corresponding to the problems of the civilization and to the spirit of the most recent time.

ARCHITECTURE

in its

Development from the Origin to the present Time

Introduction to its History, Technics and Styles

By

K. O. Hartmann

Volume III

Barocco and Modern

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PREFACE.

The present volume treats of the evolution of architecture in the last three centuries. The preeminent buildings of the Barocco and Rococo periods is regard to grandeur of treatment of interiors as well as richness and elegance of the external and internal architecture, and the abundance of notable events of the two following periods require a fuller consideration in this work, than has so far been afforded in the comprehensive works on the history of architecture. Of the architecture of the present time, by stating the modern endeavors, particularly its opposition to the preceding tendencies in art, and by indicating the new architectural problems, new solutions and new forms with the presentation of some particularly characteristic examples, I have attempted to give a characteristic general representation of its present state. Its value in the history of architecture is based on the conception of the nature of architecture as art, as the expression of the power of form innate in all civilized peoples, that for thousands of years has lent the stamp of the beautiful to their creations. Therefore for this were determinative the same basal views, from which originated the treatment of the history of the evolution of architecture here presented.

The publisher has again assiduously endeavored to anticipate all my wishes relating to the number and the reproduction of the illustrations and to the entire manufacture. Thus I may well state the hope, that the work now completed, the two first volumes of which have already found their way beyond t the limits of German speech, may find a wide distribution, a and by its treatment contribute to a more thorough and historically grounded understanding of architecture, and thereby to a clarification of important art questions of the present.

Stuttgart. Nov. 1911.

Karl O. Hartmann.

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I. ARCHITECTURE IN THE PERIOD OF THE BAROCCO AND ROCOCO STYLES.

General Basis and Character of the Styles.

The period in architecture succeeding the late Renaissance is generally designated the Barocco style. The name "Barocco style" is generally referred to the Portuguese expression "b "barocco" for oblique round, irregular and oddly shaped pearls, and it signifies in a general sense an exaggeration in t the treatment of forms and an overloading with wonderful ornamental work, even to aberration and tastelessness. If one desired to indicate thereby a criticism of the art style in question and of its worth, this would be entirely impossible and improper. For like every other clarified art style, the Barocco has its innate justification in the history of evolution. The period dominated by it acquired by its art not only just as expressive an exhibition of its purpose in the history of civilization as any of the preceding periods, but it also first brought certain countries to the climax of their arts, of which the more important works may worthily be placed beside the best productions of other art countries and periods.

The Barocco first forms an unavoidable consequence of the Italian Renaissance; already the art of antiquity and indeed both the late Grecian and also the late Roman represent a parallel evolution. We have seen (volume 1, page 136), how in the last period of antique art the endeavor to represent the powerful and mighty, the more picturesque principle in the grouping of the architectural masses, the enlargement and increased number of the members, the previously unknown accenting of the masses, the use of columns and cornices in a purely decorative sense, and even the treatment of the details in the lines of the members, in the profiling and ornamentation, appear in an entirely similar manner as harmonious characteristics of the style, as they also now become characteristic for the style after the Renaissance. Here as there in the m most abundant extent, sculpture and painting were likewise placed in the service of architecture, indeed so that the borders of the different arts ever more disappeared and passed

into each other, to finally form a unified whole, calculated for a rich decorative effect and for external show. Here as there the "Barocco" art appears as the product of an astonis ing and exaggerated creative form of an entire period. As t then its forms found the greatest employment among nearly al civilized nations, so likewise in the 17 th and 18 th centur ies, they conquered nearly the entire cultured world. In re lation to the Renaissance, the Barocco then forms the last phase of its evolution in style, in which after passing its climax, it enters on a further enhancement of its structural and ornamental works, and into a search for new and more eff ective attractions.

If thus the origin of the Barocco style on the one hand fi nds its explanation in the continuance of the artistic evolu tion, so was it on the other hand also a necessary result of the civilized and intellectual life of its time, full of str ong religious and political movements. In a much more compr hensive measure than ever, the church took the formative art into its service. The courageous zeal for the faith, from w which the counterreformation sprang, required for the expres sion of its unquiet impulse to activity and its pathos more extended means, than the Renaissance was able to offer; these must then reach a so much richer and unified development, so that the ecclesiastical life attained an unusual period of splendor, at first in Italy and later also in the entire Catholic world under the lead of the "Society of Jesus", and that was recognized by a prominent advance in church architecture. Entirely similar conditions lay at the basis of the evolution of secular architecture. The secular princes in t the 17 th century entered on the period of their unlimited rule and their highest external magnificence. More than before, they employed art to satisfy the requirements of the court. The continually increasing search for show and the extravagance of expression, that was peculiar to that time, must likewise be reflected in the art at the courts and in all architecture. To this was added the epoch-making acquisitions in the natural sciences (Copernicus, Kepler, Newton), that soon became the common property of all civilized peoples, the

knowledge by men of the world and its phenomena extended in unexpected measure, observation and thought were directed to the great and the eminent. A flight into the elevated, wide and infinite, characterized the entire intellectual life of the time; it also gave to the creations of the artists the pecularialty of their effect.

The centre of gravity of art creation lies in architecture in the period of the Barocco style. By it was established the entire construction, the architectural treatment, and the decoration in the service of the great and rich internal and lighting effect. Thereby the Barocco bears the stamp of the great style, the effect by the masses on the whole as in all its members, of bold and passionate design of an increased e expression, in comparison with the Renaissance. And therefore it abandoned the classical repose, which was given to the creations of the high and late Renaissance of the theorists; therefore the movement, at first in the lines of the cornice and detail forms, and finally even in the facade plane, became a characteristic base of its appearance. Likewise sculpture and painting were dominated in the same way by it. In its works is further manifested an expressed joy in a true conception and reproduction of natural impressions. We recognize therein, as well as in the choice and treatment of building sites and in the design of great show gardens, a parallel to the innateness and strength of natural design, by which the philosophy of that time (Bacon, Spinoza) was also permeated.

How very strongly the Barocco style corresponded to the ground tember of the time may be estimated, because it found t the widest extension and became an international world style, in which more than in any other preceding art period appeared the national differences. Even in Italy, in the land of severe classical art, it predominated in such measure, that it quite substantially imparted their external impression to certain cities, like Rome, Naples and Turin. Thereby appeared such a harmony in the conception and form treatment, that not only the local peculiarities in great part lost their importance, but that also it did not seem longer necessary, to char-

characterize so the art style of the different masters, as we have done in describing the Renaissance. The leading artists frequently wandered from one place of employment to another, and they furnished designs for buildings at widely distant p places.

In the evolution of the Barocco style we can follow several divisions, that fall in different countries and also in different times. The last stage is formed by the Rococo, which has about the same relation to the Barocco, as the flamboyant style to the Gothic (volume 2, page 105). Since this retains the proper structural members of the preceding period, and w was satisfied in regard to the architectural treatment with the curvature of certain crowning members, but therefore celebrated its orgies, the Rococo still kept itself within the limits of the columnar orders, yet with the extension of the curvatures to the plan and composition, and with an extended development of the decoration and ornamentation to armost extremely forced result of the principles of the style held by Barocco ornamentation. The name Rococo" is derived from"rocaille" (shell) for shell and grotto work, which plays a great part in its form world. The Rococo style had its proper native home in France; it there appears as one of the most brilliant expressions of the free and sportively coquettish caprices of the Gallic blood, while for Italy it comes into consideration in only slight measure, since there at the time of its appearance and extension men had already again returned to a severer conception inclined to classicism.

If also the Barocco and also the Rococo style everywhere a allows the recognition of a certain uniformity, there cannot be asserted a complete unity of the art conception in the period dominated by them. In their entire course becomes apparent an opposition of artistic views in two separating directions, of which the mostly prevailing tendency stands for the free and unlimited play of the imagination, the other for a stricter order in architecture and in all art. From the free tendency prodeeded the Barocco, from the severer the classicism, which fostered a close adherence to the antique and the nearly related late Renaissance of the theorists. Certainly

the classicism of the period expresses itself less as an uninfluenced expression of independent art design, than much more as a reaction aginst the extravagance of the Barocco and Rococo, as a return from the passionately animated lines to repose, from the luxuriant tumult of forms to simplicity and insipidity. The Barocco was supported on the one hand by the endeavors of Catholicism and of the countrereformation, on t the other by the requirements of the power of the absolute p princes. Classicism was only cultivated partially by those and indeed in combination with the Barocco, but otherwise had in Protestantism its most favorable soil. The Barocco style therefore reached its richest development in Italy, south G Germany, Belgium and Spain, and -- beside and with Classicism -- in France, regarded as a splendid and dignified representation of an absolute kingdom, while Classicism found most adherents in north Germany, Holland and England. But finally it was Classicism, that with the beginning of the second half of the 18 th century in the South and the North won a complete victory over the Barocco and the Rococo.

1. Architecture in the period of the Barocco and the Rococo in Italy.

I. Historical evolution and style.

The earliest characteristics of the Barocco style are already found in the works of Michelangelo. The incomparable master of genius, who like none other before and after him, dominated all three principal arts, architecture, sculpture and painting, with equal certainty, and could draw them into the service of his high artistic problems, bore within himself all the peculiarities, that must compel him to a rapid abandonment of the strict art principles previously held. His overpowering personality, that sought to bury itself in the powerful pressure for creation, the preference for the powerful and the colossal, his unquiet spirit, that particularly expressed itself in a frequent dissatisfaction with his creations in statuary, and ever demanded new materials, his expressed sense for grand decorative effect, in this we recognize the ground lines of the Barocco style. Certainly this tendency in architecture first employed on the tomb chapel of the Med-

Medici in Florence (volume 2, page 221), begun in the year 1 1521, did not at first attain general further development. Indeed already about the middle of the Cinquecento it had exerted a determining influence on several in part very important buildings. But the contemporaries and direct successors of the masters, among them the most respected architects of that time, in the majority at least in the architectural treatment adhered to the required mode in the Italian high Renaissance for a refining of the forms in an antique spirit. T Therefore the earliest beginnings of the Barocco style still occurring in the late Renaissance could not thrive in opposition to the tendency represented by the principal masters, p particularly by Vignola and Palladio. But it is characteristic for the outbreak of Barocco ideas, that just the former of these two "strict lawgivers of architecture" was the one, who designed the ground plan of the church Gesu in Rome (volume 2, page 227), the typical Barocco church, that became a model for a number of others, and that his pupil Giacomo della Porta with the facade placed before it, became the founding and guiding master of Barocco art. To the influence of the severe classical tendency is it to be attributed, that m many buildings of the Roman Barocco, that already show a very energetic striving for a grander treatment of the interior in the sense of the Barocco style, do not keep equal pace in the form treatment with the progress of the development of the s style by retaining the more academic elevations of columnar architecture. Then the architecture of the theorists passed over into that of the Barocco style without a striking breach with the past about the year 1580. The starting point and m most important scene of Italian Barocco architecture was at Rome. The eternal city was to again live through a new and splendid architectural period, even after its high aslent in the period of the Renaissance. The impulse to this was given by the revolution in ecclesiastical conditions, which resulted from the events occurring at that time north of the Alps. There the reformation had most deeply agitated the minds. The stormy movement aroused by it made its powerful wars felt in even Italy, and there led to a complete transformation of the

spirit of the time, which found expression in the counterreformation. Religious ideas filled the entire people as well as the leading spirits. So absolutely as only once before questions of faith stood in the foreground of all public interest. Bloody wars were waged all over Europe on their account.

In was unavoidable, that the again aroused religious spirit -- indeed a spirit, that would first of all express itself in the creed borne for show -- should obtain its strongest impulse and expression in the papal city, the latter chiefly in church architecture. This now proceeded to a new and magnificent development. It again became a leader in art, while t the Renaissance in great part was developed on palace architecture, its forms then being transferred to church architecture. In church architecture was completed the entire development of the style of the Italian Barocco.

We can distinguish three periods in its course, that are characterized by the ascending development, the artistic climax and the decadence. The first period of the early Italian Barocco falls in the time from 1580 to 1633, i.e. to the installation of the high altar by Bernini, the great master of the Barocco, in the church of S. Peter at Rome (Fig. 23 and page 30), that in its time aroused great attention and had as a result an entire abandonment of the previously valid art laws. In this early period were developed the ground lines of the Barocco style with increasing distinctness and boldness; concentration of the architectural ideas on works of triumphant magnitude and splendor; unity of the architectural c creation, both in respect to the treatment of the interior as well as to the architectural form; picturesquely animated grouping of the architectural masses and of the architectural members; wide and high spaciousnes of construction; effective utilization of the contrast of light and shade; free and powerful handling of the forms, independent of the former architectural rules, with duplication and enlargement of the structural members (Figs. 1, 2); rich and splendid equipment with many-sided additions of sculpture and painting; the whole as an expression of the highest design and knowledge, calculated for the production of the most elevating and solemn

harmony. The principal masters of this period are:-- Giacomo della Porta, Domenico Fontana and Carlo Maderna. We shall d describe their works later. They manifest a conscious abandonment of the track of the Renaissance and an ever increasing division therefrom, until the path passed over -- with the e end of the first third of the 17 th century -- enters a course in which it reaches the extreme distance from that style.

Therewith begins the period of the flourishing Italian Barocco style, which is to be placed in the time from 1633 to 1700. It characterizes a gradually appearing and visible change in the conception of art, which stands in close connection with the changed views on the importance of the Renaissance and the relation of art to the church. Yet a few decades earlier were the smallest remains of the antique inspired, revered and esteemed. But now the respect and reverence for classical art had sunk like that of pagan antiquity, so that the architecture-loving Pope Sixtus V had antique buildings removed (among others the Septizonium of Severus; volume 1, page 139) and antique statues were removed from the public squares or replaced by Christian (for example on the triumphal columns of Trajan and of Marcus Aurelius). Men were also scarcely less intolerant to other preceding art. Numerous churches of the Early Christian period, the middle ages and the Renaissance, indeed even from the early Barocco period, were covered by stucco decoration corresponding to the taste of the time. We see in this in what high esteem this stood. But also in the general composition and in the architecture appeared important innovations. Men began to resolve the heavy structural masses, to enhance the picturesgue in the interior by interesting perspective views , and in the form treatment by animated play of lines in the whole as in details, to enrich the decoration by all means, and well calculated perspective and lighting effects in the service of an extremely labored and even refined effect.

More than in the early Barocco again appears the individuality of the different artists. Thereby their works acquired an animated and personal character. Also the general representation of architecture changed its appearance. Since the

theorists had restricted architectural creation to fixed rules and forms, to definite dimensions and proportions, it received a dry, meaningless and frequently unfriendly character, particularly in the hands of less important architects. When Bernini, the great master of Barocco art, took up the plan a and with scrupulous dignity broke the restrianing fetters and gave life and movement to the petrified forms, such as corresponded to his own designs, the people exulted in him as inspired, and even the masters in the majority were overjoyed, t that finally the bonds were broken, which for centuries had set limits to their free inspiration. In the works of Bernini, Barocco art shows its highest on those of his contemporary Borromini, who even sought to excel him, in its boldest w works. It was Borromini, who set the entire walls, and particularly the facades, in oscillation and in the form treatment, following his passionate temperament, deviated farthest from the normal. (Fig. 3). The details, which were frequently neglected in the first period in view of the intended effect of the masses, were again treated with care, but in the endeavor for lightness and picturesque or strong effect of shadous, with the greatest possible use of animated curves in the framework, were transformed in the cornices and even in their profiles. With the two architects mentioned stands as equal a third, Pietro Berrettini, called da Cortona, chiefly employed as a painter, the founding creator of the showy ceiling decorations. He was followed by Andrea Pozzo, in whose astonishing ceiling paintings and equally splendid and costly internal decorations the love of show and the festal harmony of the Barocco time found its clearest expression. (Fig. 12).

The first and second periods of the Italian Barocco style had chiefly Rome and the immediate vicinity of the capital as their scene. It had aroused unusual attention, received the most animated approval, and in the last quarter of the 17 th century commenced its spread into the remainder of Italy and beyond the Alps to the Austrian and German countries. But the successes of the before mentioned masters could only exceptionally inspire their own creations with that high artist-

artistic life, which is peculiar to the buildings of Bernini and Borromini. They adopted the series of forms and technics of the great masters, and indeed as usually the case for the spread of definite art tendencies, in the extremes and personally most distinctive types, thus chiefly those peculiarities in style, that are especially striking as innovations opposed to the Renaissance. Since Borromini went infinitely farther in this than Bernini, then just his buildings exerted a lasting influence on the architects and painters of nearly all Europe. Thereby came those thoughtless imitations and limitless exaggerations into being, by men not creating by their own gifts, that have brought the Barocco style into such bad repute. But so far as Italian architects were engaged, who now received geeat commissions from outside their country, they entirely followed the paths previously designated by the principal masters.

About the end of the 17 th century became perceptible an energetic reaction against the luxuriant style of Roman Barocco art. The tendency to extreme caprice introduced by the stupid successors of the principal masters in Italy, the native land of the Roman antiquity, where the grand structures from the classical earlier period yet stood before their eyes and challenged comparison, could not remain without strong opposition in time. The Barocco style also already about 1700 had passed the climax of its development; in the extravagant works of Borromini it reached the natural limits of its capacity for development. Meanwhile Rome had suffered loss in its position as a world power and theeeby in its importance. The centre of political history lay in France, where the culture of art had taken a splendid advance under Louis XIV. From thence a severer conception influenced the chiefly concerned distinguished and dignified appearances, and through moderate leading masters Italian art again, particularly palace architecture, which adopted many suggestions from the high development of the French royal chateaus. Thereby after Borromini's later time lame new support and increasing influence to the counter movement occurring in Rome with the aim of "purifying the degenerate architectural style", under which architecture

gradually passed into more quiet paths, into those of the third period of the late Italian Barocco style, which comprises about the time from 1700 to 1800. The facades (Figs. 53, 31, 32) were again in a plane; the structural members were brought into better graduated proportions and more carefully drawn, and likewise in the internal decoration taste experienced a corresponding purification. Yet the more important masters, particularly the specifically Roman among them, entirely retained the character and architectural aims of the Barocco of the best period, even if they loosely held the monumental effect by their excesses. The chief masters of the late period are Filippo Juvara, Alessandro Galilei, Niccolo Salvi and Luigi Vanvitelli.

The Barocco style corresponded so strongly tn the national spirit of Italy, that the proper Rococo found no entrance, a aside from a few examples shown in upper Italy. At the time when the Rococo of France spread over nearly all Europe, the Italian masters opposed to it monumental works, that belong to the grandest creations of Barocco art. First at about the middle of the 18 th century the imagination, exhausted by the vast expenditures of power, resorted to the ideal of the native classical art, when it entered the path of Neoclassicism.

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they were also sometimes entirely omitted or transformed into chapels of considerable width and but small depth. The transepts projected but slightly beyond the width of the nave. The nave received only a moderate extension on the main axis, in order to not injure the effect in the interior or that of the dome externally, indeed with three intervals between piers for the front arm and one between transverse aisle and apse. The choir terminates in a semicircular apse. For the plan in the form of the Latin cross with chapels at both sides of the main aisle, the Jesuit church in Rome had furnished the classic model (volume 2, page 227). It is the normal type of the church building of the Barocco period, and reappears in numerous churches, among others in almost unchanged form in S. Ignazio at Rome. (Fig. 6). The Greek cross was only employed for especially added show chapels. But men did not always adhere to the normal type. To heighten the internal effect and to increase the picturesque effect, the front arm of the cross was frequently extended between two piers like a transverse aisle. Through Borromini's rooms of round, semicircular and elliptical plan, circular terminations and even domes with oval ground plans came into use. The search for novelty finally produced the most varied combinations, but m mostly very skilfully calculated for the effect of the interior of the dome.

* *The extension of the church of S. Peter in Rome by the n nave designed by Maderna commenced in the year 1607.*

The structure (Figs. 3, 4, 7, 9, 21, 22) strove for a matestic internal and external appearance of entire enclosure and unity, so that it expressed the strict Catholic principle of a strong accenting of the Christian idea of upward endeavor by rich vertical members (with continuous pilasters and columns with returned entablatures), the gathering and appearing of the forces in the mighty dome, lighting and decoration, w which produced that solemn and reverent harmony, suited to t the House of God. Structural difficulties opposed the use of columns in the interior, since for the desired intervals, these must be far too massive, in order to support the upper walls of the middle aisle and the vaults. Therefore columnar

church es only were exceptionally used until about the year 1800. The columns were sometimes coupled in pairs and furnished with an entablature block above the capital. The spacious wide and high construction required the erection of piers. Further subdivision as a rule with the great interspaces, one pilaster no longer sufficed, since it appeared as too weak. Therefore they were arranged in pairs beside each other or projected from a central main pilaster, on both sides of which adjoined receding half or quarter pilasters. Thereby resulted a doubling and repetition of surfaces as a clustered pier, whose profile was frequently continued in the transverse arches of the vaults. Half columns but seldom projected from the piers, since they reduced the unity of the interior and caused a too massive impression. Generally columns were still employed in the interiors of churches at the time of the developed Barocco only for the construction of wall altars, then being composed of real or imitative variegated marbles.

** In the Cathedral of Bologna, the choir was built about 1575 by Domenico Tibaldi and still belongs to a late Renaissance. But the nave system (page 29) gives an excellent example of the developed Barocco style.*

To the rich subdivision of the piers corresponded an animated treatment of the walls by pilaster orders with blind arches turned between them and the addition of niches, that were arranged beside or over each other in various ways, frequently being enclosed and treated in a bombastic manner. The main cornice continues in an animated broken line around the i internal walls, interrupted by many returns above the compound piers, as the upper termination of the vertical structural parts. Above it usually extends a comparatively high attic for increasing the height. Thereby the unity of the interior is preserved and more strongly accented. Above the attic rests a semicircular or depressed tunnel vault for spanning the middle and transverse aisles, intersected by the side vaults over the windows of the clearstory walls. The chapels are p partly lower, so that galleries find space over them, but are also partly extended high.* Their covering is almost always effected by low domes or cross vaults without ribs. Where

galleries are arranged, above the arched openings to the chapels is added an intermediate cornice with a balustrade railing. In the later time the galleries frequently project as balconies in animated curves with railings curved outward. Great attention was paid to the imposing effect of the dome, which rises in a majestic vaulting line on the intermediate pendentives (volume 1, page 106), with a drum subdivided internally by pilasters and externally by half columns, and terminates in the lantern. In the construction and treatment of the dome and of its substructure substantially new solutions scarcely occur. The towers increase the picturesque general effect of the architectural group usually in the happiest manner, if they are simple and are kept within noble proportions and are not built on labored (oval or even with two sides curver outward and two curved inward) ground plans, according to the dangerous example of Borromini. With careful graduation according to the importance of the different rooms, the lighting is effected by small windows in the chapels or side aisles, by elevated ones in the middle and transverse aisles, over which transverse tunnel vaults (as cross compartments) intersect the main vault, and in the interior of the dome by the abundant admission of light by the circle of windows and the lantern.

* *In the monastery and foundation churches of south Germany, frequently built under Italian influences, the chapels have nearly the height of the middle aisle.*

The facades (Figs. 1, 8, 20 b) are treated on the entrance end as purely show pieces, without taking particular care for the expression of the arrangement of the interior. Through Palladio the use of a single columnar order came to be adopted. But the predominating system is formed by two orders above each other, indeed in the early period chiefly by pilasters, in the later time by half or entirely projecting columns. The upper termination of the fronts of the side aisles (or chapels) against the building is by volutes, which are usually decorated by garlands of fruits and the like. Since the side aisles are narrower than in the Renaissance churches, the facades appear more unified and consistent. This facade

system is then developed in the most varied ways by the alternation of projecting and recessed wall strips, by pilasters and columns, windows and niches, and the form treatment. Borromini and his imitators then adopted the mentioned means of curved facades, when they allowed the middle portion with the entire architectural arrangement to project in curves and curved inward the side wall surfaces, or the reverse, or when they at last evey took the wave form as a basis. Next to the main facade also the dome is richly treated. Otherwise the side facades remain simple, like the entire exterior; it is limited to a simple subdivision by pilasters and to a modest enclosure of the windows.

On the architectural treatment of the details, the determination of the composition for great internal, massive and decorative effect invariably exerted only a detrimental effect. Caprice in the treatment of the columnar or pilaster orders, the doubling of structural members by the insertion of half and quarter pilasters behind at both sides of the columns or main pilasters (it was desired to produce thereby also a perspective apparent recession of the wall panels), the corresponding repeated returns of the cornice permitted the disappearance of the refined feeling for a form treatment corresponding to the statical functions of the structural members. In favor of the richer effect of the cornices their members were also heaped, strong projections casting shadows were given to them, sharp undercuttings and free profiles in wavy lines.((Fig. 125). Yet in this the Italian masters did not go as far as did the Germans later. Even on the capitals were attempted novel forms, even if by an unlucky hand. The Ionic, Corinthian and Composite orders were preferred. On the capitals of the former the volutes, projecting under strong pressure, were combined with a series of leaves, whose tips hung down like tassels. The portals on the principal facade are comparatively small; by their entire subordination to the general effect and the insertion between them of the pilasters or columns dominating the facade, there remains but little s space for their development. On the contrary, the middle portion is preferably so terminated by a gable by itself, that

it appears as a grand external enclosure of the principal portal. (Figs. 1, 8, 20 b, 29). At the sides, where the restricting conditions vanish, the entrance doorways are often emphasized and flanked by columns or pilasters. On the window enclosures the wavy profiles appear more strongly. the pleasure in animated and broken lines leads to the returns of the enclosing members at the angles, whereby the windows and also frequently the portal jambs receive the so-called ears, characteristic of the Barocco. (Fig. 13). Over the windows and portals the gabled and curved caps and ornaments play a great part. They were treated with animated curvatures, perforated, rolled, and even overloaded with sculptures and decorative ornamental work. In and above the portal caps place is found for statues of saints, figures of angels, papal, bishops' and other arms, emblems, crowns, halos and the like. The niches frequently receive a very showy enclosure, like the windiws. They are mostly intended for the reception of statues of saints, but likewise serve for the subdivision and animation of the wall surfaces and for accenting definite parts. The upper ending of the interior of the niche is preferably by a radiating and carefully wrought shell, which thenceforth forms a favorite element of the ornamental forms. The consoles also reach a richer treatment and use; in any case one frequently misses in their proportions and form treatment the development from the structural idea. Above the main cornice generally further rises an attic or balustrade gallery, whose p piers seem continuations of the facade pilasters and serve as pedestals for figures of saints (in secular architecture for statues of historical or mythical personages, of obelisks, t trophies, vases etc.); they give the building an effective c crown and an animated outline. Aside from the especially preferred places, the ornamentation of the cornices, archivolts and the like was generally avoided, and likewise on the flutes of the shafts of pilasters and columns. An effect was rather sought by heaping the moulded members and the returns. Herein the conception of the Barocco period essentially differs from that of the late Roman antique, that on stately buildings covered the bases, architraves, friezes and cornices u uniformly with sculptured work in interwoven bands, garlands.

of leaves, egg-and-dart mouldings, pearl beads, acanthus ornaments, rosettes and the like.

In the decoration of the interiors the seeking of the time for show found in the better works its most fluent, but mostly an aimless and loud expression. If already the architecture could scarcely afford satisfaction, then men knew no further restraints in relation to all that acted by light and sshade, by form, color and gleam, and could astonish. Where the means could be obtained, the entire interior was covered and overloaded bith relief and painted ornament, and with the splendor of color and the metallic lustre of costly materials, but with well calculated gradation according to the importance of the diffeeent architectural parts. In the chapels the development of the splendor was relatively restrained, but it was enhanced in the choir, on the altars and -- to draw the eyes upwards -- particularly on the vaults. The plinth, pilasters and cornice, frequently also the internal window enclosures and jambs, after the precedent of the Jesuit churches in Rome received facings of variegated marble in animated colors, and indded for the plinth was preferably taken dark gray or black, for the main pilasters red below and black above with white veins, white for the capitals, the architraves an and the main cornice. But to frieze were given white ornaments on a black or draw ground of marble. If possible the walls of the choir and frequently also certain favored chapels were faced with yellow or variegated marble. For sepulchral or passion chapels was then preferably chosen black or dark gray marble in alternation with yellowish white. Where the genuine material could not be obtained or the means did not suffice for it, it was imitated in stucco, to which was given the appearance of the noble stone by a mixture of bits of stone of different colors, by rubbing and polishing -- the workmen attained great skill therein. Beside this obtrusive magnificence refief ornament could only be satisfactory in the boldest form. Statues of saints in animated movement and in ecstatic postures, with garments appearing to flutter in the storm wind, figures of chubby little angels, both in the round and in dry relief, allegorical ideal figures fill the niches and adorn the tops of gables, spandrels of arches, keysto-

keystones and attics, the altars, pulpits, holy water stoups and the like. In the naturalism of the forms and the representation of the affectedness in the beards and the expression of the faces, things worthy of recognition were undertaken by the mort important masters; by the lesser artists and the arrangement of the masses, that almost form the rule,* (see page above), the sculptures have merely a decorative value. The execution was on the altars, pulpits and the like, in marble, stucco and in wood, in the latter case with painting in colors and partial gilding, but on the walls almost exclusively in stucco. In a similar manner was treated the ornamental d decoration, which was distributed in lavish abundance over t the entire interior, in white, or gilded and also partly painted in colors. As motives for this are particularly characteristic for Barocco the cartouches (swelled enamel shields enclosed by bombastic scrolls; Fig. 10, top; Fig. 13, the shields over the portals), shells, heavy garlands of leaves and fruits, acanthus bells, leaves and scrolls of "conventional swelled forms" were employed. In the later time the ornamental work assumes a soft character derived from stucco technics, as if it was modeled from a doughy mass with a particular preference for shell forms in a nasty and freehand commission. The richest development was attained by the framework as enclosures of paintings and figure reliefs, or also as independent structure or decorative forms for the subdivision and animation of the wall surfaces. The frames are at first rectangular with returns, roundings or recessions at the angles, but later move in curves with outlines ever increasing in movement. In their often very charming decoration by foliage and shell work, they belong to the most profitable and expressive innovations of the Barocco style. The last stage of their development is visible in the style of decoration represented in Fig. 16. Decorative painting secured in the ceiling paintings the most appropriate field for showy development of its charms, and this was utilized in an extremely labored manner. Therefore even more than the other arts were they under the domination of Barocco principles. In the period of t the Renaissance, figure representations on the ceilings were

mostly restricted to the domes and the half domes. For the remaining vault surfaces were then employed coffers or ornamentation. The Barocco resolved these surfaces into panels, that always became larger, for the benefit of allegorical, historical or mythological representations. Finally it took the entire vault for a painting , and left it to the stucco-worker to create for its works a suitable enclosure with supporting and filling figures, cartouches, garlands of fruits and ornaments. There originated the great ceiling paintings, that were properly adapted to embrace as much as possible the feeling of spaciousness in the interior and the sensation as if the interior were closed at the top. (Fig. 11). It was opened by a view of the sky and its occupants soaring on cloud forms, and to strengthen the illusion, painted on extremely naturalistic views on the underside, figures appearing in life size, which were grouped around the edge behind balustrades etc. in festal costume, moving on splendid architectural structures, which are so equipped as if one were in the court of an ideal palace with the eyes directed upward. In order to make the deception perfect, men even went so far in the 1 18 th century as to pass from painting to sculpture, i.e. draperies and figures in relief in stucco at the extreme edge with scarcely perceptible joinings, so that portions of the clothing,/legs and arms etc. hang over theenclosing frame, a and even entire figures in relief project from it . Men were even no longer satisfied with that. Certain masters hit on the startling idea of further deception by the contrast between the dim light of the interior of the church and the full daylight, when the actually perforated the vaults of the church by openings outlined in the Barocco style, and indeed on a second vault built over them and brightly illumined by side lights, painted the sky and clouds, soaring angelic figures and divine personages. -- We regard such a trick in art as a cunning act, that only appears intelligible to us by representing the aims of the time as directed toward theatrical pomp. In the crowning of the high altar, the halos based on a similar effect and with God s eye have much more the appearance of justification. The internal equipment attains its climax on the altars. They are colossal arrangements of columns, t

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that either enclose the altar table, or in case they are free, as a canopy. (The most famous example of this is the altar of S. Ignatius in the Jesuit church at Rome, the most venturesome and worst in its results being Bernini's high altar of S. Peter's church there. Figs. 12, 23). Likewise the pulpits, doorways and the cabinet work of the churches exhibit reduced transfers of the architectural forms developed on the walls.

The monasteries of the Barocco period in general retain their traditional plan. Yet the cloisters visibly lose their former importance and afford interest only in particular cases, if they are treated as arcade porticos on columns. On t the contrary the chapter halls, refectories, sacristies and stairways in the monasteries of the more powerful Orders mostly exhibit the Barocco style in its most expensive and dignified magnificence.

Certain Orders, and indeed such as have to maintain no divine service of the community, reject colored decorations of their House of God, aside from the altars; they leave the walls white. Just in these churches but slightly decorated in color does the Barocco architectural and form system exhibit its most favorable side; here may it be seen, that the endeavor of the Barocco style for breadth and high spaciousness with construction and for a freer and more powerful treatment of forms in the spirit of its time are shown the highest works.

Palace architecture first strives to provide for the court and for the monarch as large, wide and high apartments with the most impressive and convenient arrangegent, designed to receive a distinguished society and to afford subordinate rooms suitable for the servants, in proper connection with the principal apartments. The courtyards become less important; particularly in Rome and middle Italy, they are preferably e enclosed by walls alone or receive an open loggia on but one side. but in upper Italy by a certain preference the courts with porticos are retained. There are found very impressive columnar courts, while elsewhere when open courts were desired, the arcade structure rests on piers as a rule. In the arrangement of the ground plan may be recognized an inclination to a greater extension in length with a corresponding re-

reduction of the depth of the building, in order to produce an imposing effect by a vast principal facade. In the grouping of the rooms opportunity was taken particularly for a tasteful arrangement of the main portal, vestibule, stairway a and main hall. Several points determined these, by which the Genoese architects of the late Barocco already allowed themselves to be guided. (Volume 2. Page 232). The facades (Fig. 13) form a continuous straight line, without winds at the angles and also chiefly without a projecting middle building. They are restrained in the first period within modest limits (in contrast to the contemporary church architecture, which by the striking enlargement of the cornices and by heaping t the pilasters and columns, men sought to awaken the idea of earnestness and of reverence in presence of the House of God. The stories thenceforth are no longer treated as of equal value, but one of them is especially emphasized as the principal story, particularly the middle one, by a greater development in height and a bolder enclosure of the windous. The lowest story frequently merely forms a high plinth for the building, on which rests the subdivision by pilasters as a "colossal o order". But in general predominate facades without a subdivision by pilasters. The required great windows of the principal story and the smaller ones, particularly those of the intermediate story, do not fit well into their system without restrictions or irregularities in the subdivision of the surfaces. To the windows was given a correspondingly bolder and richer treatment, especially with capriciously curved caps. Instead of the pilasters, vertical wall strips frequently appeared after the 17 th century, which in combination with horizontal bands effect a subdivision of the wall surfaces into sunken panels. The actual show pieces of the facades are the portals. By the rich sculptured ornament and by the atlantes or hermes often employed there, which give the expression of the most luxuriant exercise of force, and in connection with the balconies supported by them, they form architectural pieces of most effective magnificence. On the whole the facades also follow the principle of an entire unity of artistic creation; particularly in the very much preferred ex-

-xecution in plaster and stucco, they appear as a homogeneous mass with a relief character. They still retain in the second and third periods, also with greater expenditure in decorative expedients, as a rule a cold, dignified and often repellent restraint. We have in this a reflection of that grandiose character, which under Spanish influences then dominated transitional forms of distinguished society. Only the garden facade, as belonging to the more intimate portions of the house, exhibits a richer subdivision and treatment. The greatest splendor was developed in the handling of the interiors. Through the main portal is first entered the vestibule. It is generally an imposing open portico with picturesque views of a fountain erected at the opposite wall of the court or of an ornamental architectural structure with a real or painted distant view of the landscape. From the vestibule a grand s stairway leads to the principal story. In a particularly monumental design, this has a broad middle flight with low risers to a landing, and from there by two branches at the sides extending backwards. If the stairs also extended to the upper story, they were mostly arranged in the form of an extended hall with the stairway flights arranged along its walls. From the stairs one either passes directly or through an anteroom into the principal or festal hall. This is placed on t the middle axis with a shape approximating a square. At both its sides are placed the apartments for the masters. The ground plan of the principal story,as a rule in the 17 th century, further receives a long and narrow hall, the gallery (g (galleria), which (according to Scamozzi's statement) was adopted by the French chateaus. In the grand style these were furnished with orders of columns or pilasters and ceiling vaults, and in the developed Barocco, they form the most magnificent interior of the palace. (Fig. 15). Until about the middle of the 17 th century, the halls have horizontal carved a and painted or gilded wooden ceilings, but are later covered in the form of low vaults, chiefly constructed with wooden s surfaces covered with plaster for the reception of fresco ceiling paintings. On the walls of the great halls predominates the purely architectural subdivision of the walls by columns

pilasters (Figs. 15, 16). In the smaller rooms during the f first period the walls exhibit below the ceiling a deep frieze adorned by figure or landscape paintings, under this being a paneling or hangings of decorated leather, fabrics or of p printed papers (in the subordinate rooms). The principal wall with the mantle receives a larger fresco painting over this. The walls were later entirely covered with hangings or even more rarely were covered by painted representations in perspective. Concerning the treatment of the cabinet work, the relief and painted decoration and ornament, what has already been said on pages 16 to 20 is applicable.

The remaining secular architecture matures no new and peculiar architectural designs, aside from the theatres; but it is completely dominated by the Barocco in composition, the s striving for spaciousness, for the most convenient arrangement of rooms possible, for impressive treatment externally and internally, and particularly in the entire treatment of the forms and the decoration. The manner in which this permeates the entire art and industrial creation from the height of the life of the court down to the simple peasant's room and its equipment, and it is characteristic of the intensive and innate life power in it. Public buildings, that had to provide for assemblages, such as city halls, universities and the like, preferably adopted from palace architecture as models the vestibules, the grand stairway and the great hall. Villa architecture, which attained its climax in the time of the Barocco style, most closely adhered to these. It developed more in width than in height and depth in its design, since it was less restricted to a limited ground area. In the interior a are frequently found state halls with the most splendid treatment, favored by the free light on all sides. The front facades (Fig. 18) are mostly simple, often severe and repellent, but richly treated on the garden side. The garden style reached a stately development. It retained the principles already developed in the 16 th century by the Renaissance (volume m, page 200), but passed wholly into grandeur while retaining severe architectural lines, designed for prespective effect. The water courses and walks were always laid out in straight lines, the former often extended into basins, the latter acc-

accompanied by dense hedges of cypresses or covered by evergreen foliage as if vaulted, with openings for views of the distance, of grottos, fountains, ornamental architectural structures or works of sculpture having a definite mythological significance. The frequent grading of the soil into terraces afforded opportunity for the design of ramps with balustrade railings, for cascades, flights of steps, semicircular enclosures (the so-called theatres) and the like. To these state gardens was assigned extraordinary importance in the Barocco period. In them was fulfilled not only the most important r requirements of a quiet stay in the country, but also in the harmony between villa and garden, as well as in the contrast between the free and uncultured nature and the presence of t the nobles were effects of the choicest charm. (Fig. 17).

The well conceived composition of the architectural works in the landscape and surroundings with regard to the most tasteful external effect possible led to a very careful selection of the site, and in cities to a monumental treatment of t the square. For this especially served the public fountains, grand flights of steps (Fig. 19), memorials and gateways, which both as show buildings like triumphal arches as well as portals of parks and even for small gardens and squares, received a very fanciful and imposing treatment. (Fig. 27).

Theatre architecture experienced an advance in the Barocco period. To the audience space were given rising seats, in t the arrangement of a horseshoe with the open side toward the stage, its rear being enclosed by a two story arcade portico. The rows of seats surrounded a great parquet before which was placed the stage. Instead of the solid walls of the stage w was an architecturally treated structure, through whose great openings could be seen the acts played on the stage. The rear porticoswere finally developed into boxes and galleries, the rows of seats and the stage floor were inclined, and the stage was furnished with traps, side and top scenes, thus having the type of most modern theatres.

II. Most Important Monuments.

PERIOD OF THE EARLY ITALIAN BAROCCO STYLE. The first and the path-breaking master of the Barocco style was the already

mentioned Giacomo della Porta. His basal cheation is the facade of the Jesuit church in Rome. (Fig. 8). Vignola had divided the facade into three parts in his unexecuted design, a wide middle building and two side portions only attached to it (as fronts of the rows of chapels accompanying the middle aisle), treated with simple pilasters or columns with unequal intervals, with the addition of doors or windows alternating with niches in the intermediate spaces. Giacomo della Porta created a complete unity of the facade by including the fronts of the side aisles in the general form and terminated them at top by energetically curved volutes closely joined to the middle part. He doubled the pilasters and accented the vertical subdivisions by repeatedly returning the cornice. The relief ornamentation was substantially simplified; the niches intended by Vignola in the thre outer intervals were entirely omitted, but the cornices and structural members were correspondingly enlarged; accenting the separate wall panels by enclosures was avoided. Thus originated an architectural mass, clear in its organism and properly subdivided, with unified and complete character. Porta's activity as the constructing architect of the dome of S. Peter's has been already judged. (Volume 2). Of his palaces, palace Palazzi in Rome is distinguished by beautiful proportions still closely adhering to the Renaissance. The villa Aldobrandini near Frascati (about 1600) already bears in the massiveness of the members the lines of the developed Barocco.

A severer tendency in the sense of the late Renaissance was followed by Martino Lunghi the Elder in his palace Borghese (after 1590), which encloses a spleydid arcaded court with c coupled columns. Of his two church facades, Chiesa Nuova adheres to the model given by the church of the Jesuits, while S. Atanasio dei Greci betrays influences from upper Italy (t (the native land of the master).

The architects of the art-loving Pope Sixtus V, Domenico F Fontana (1543-1607) and his brother Giovanni (1540-1614) more strongly expressed themselves within the limits of an academic classicism. From the former comes the chapel of Sixtus V, entirely arranged as a central building above a Greek cross,

as if forming a right transept to S. Maria Maggiore, (begun 1584) and palace Lateran (begun 158.) recalling palace Farnese. He was also architect of the church S. Peter and as such executed the crowning lantern. Under Sixtus V the antique acqueducts were also partially restored, and the colossal obelisks were erected before S. Peter's, S. Maggiore and the Lateran.

27 About the end of the 16 th century occurred a revolution in Rome, that allowed Domenico Fontana to leave the eternal city and go to Naples. He erected there (after 1600) palace Reale, planned in vast dimensions, but tasteless and greatly restored after the fire of 1837.

In Roman architecture the free and advanced Barocco won supremacy over the academic tendency. Domenico's pupil and nephey Carlo Maderoa (1556-1629) then became the authoritative Roman architect of his time. His early work was the facade erected (about 1601) for the basilica of S. Susanna in Rome (Fig. 1), extending back into the Early Christian period, and it has an entirely Barocco treatment. About the same time he undertook the completion of S. Andrea della Valle, begun by Paolo Olivieri in 1594, who died early, and which in plan closely adheres to the church of the Jesuits, producing a very dignified impression in the interior by its spaciousness and the noble decoration, though still restrained. In the year 1604 Maderna was appointed architect of S. Peter's church. To him fell a problem fatal to the noble effect of the central building, both in regard to its interior as to its external appearance; he was directed to add a nave before the central structure in order to carry out the decision made by Paul V in the year 1605 (volume 2, page 217). Maderna gave to the nave three bays of less depth and endeavored as far as possible to lessen the unavoidable injury to the form of the interior, when he enlarged the side chapels toward the dome and sought to improve the domed area by a favorable lighting. But this was but partially successful. Actually one obtains in the church of S. Peter an entirely satisfactory appreciation of the interior, corresponding to the vast dimensions, t the boldness of construction and harmony of the proportions,

first at that place in the nave at which the building of Michelangelo commences. In the plan of the vestibule, which is placed before the entire width of the nave, he returned to Early Christian ideas. He treated the facade as a broad front with a colossal order of Corinthian columns and pilasters, a central and slightly projecting pediment, a high attic abo-
28 ve] crowned by statues between two ornamental gables over the receding portions at the two ends. The facade represents a colossal ornamental piece of architecture, which appears disconnected from all relation to the building and particularly to its dome. Otherwise Maderna had at command considerable artistic ability in the development of the interior. His internal architecture of the vestibule of S. Peter's (Fig. 21) is counted with the most beautiful creations of this kind in all Rome. Of the palace buildings of Maderna is to be mentioned the beautiful court of palace Chigi (now Odescalchi on Piazza S. Apostoli), that recalls the courts of the palaces of the high Renaissance in upper Italy, and palace Barbenini (after 1624), where the master drops the traditional plan, omits the internal court and --indeed to obtain a richer picturesque effect -- connects two parallel wings by a middle building. (This building was executed by Bernini and Borromini ,page 33). In the series of architects of the first period of the Roman Barocco style also appears the famous painter Domenichino (1158-1641) with the design for the grand church of
29 S. Ignazio (1626) in Rome, in which he adheres to the conception previously held by Vignola and Porta. In the ground plan of this church are repeated the lines of the plan of the Church of the Jesuits (Gesu), aside from quite unimportant v variations. (Fig. 3).

The remainder of Italy participated in the development of Barcoco art during this period to but a very limited extent. In Florencethe basal tendency held by the masters of the late Renaissance did not essentially change under their direct successors, although in details Barocco elements were adopted in increasing measure. Bernardo Buontalenti (1536-1608) went farthest in this, who capriciously broke and altered the pediment and introduced in the decorations accessories of all k

kinds, (fabrics, skins of animals, and especially grotesques in wonderful forms). He built several palaces and a larger number of villas near Florence, in which the chief emphasis is placed on the picturesque landscape. Likewise he gave to theatre architecture the now prevailing form of the space for spectators and for the stage.

Yet more than in Florence the spirit of the late Renaissance remained effective in upper Italy, indeed not only in the noble columnar courts of the palaces, splendid examples of w which exist in Milan, Gremona, Bolcgna and Brescia, but likewise in church architecture. The latter exhibits in the cathedral of S. Pietro in Bologna (1605) by Father Magenta a grand and noble work on the nave system (Fig. 7), and in the new cathedral at Brescia (1604) by G. Lantana, a magnificent central structure.

In Genoa the previously mentioned palace of the University Svolume 2, page 234) by Bartolommeo Bianco and palace Balbi Sonerega, designed by the same master in 1632, belong in time to the first Barocco period, also among church buildings, the pompous Jesuit church of S. Ambrogio (1589), on which are to be recognized influences from S. Maria da Garignano, as well as the two columnar basilicas -- Genoese art here shows particularly its preference for columnar construction -- S. Annunziata, designed in 1587 by Giacomo della Porta, and the church of Madonna della Vigne (1586), in which two columns are c coupled by entablature blocks, both churches having great axial distances and extremely splendid decorations. (Fig. 22).

In Venice Alessandro Vittoria (1525-1608) in his beautiful palace Balbi (1582) represents the conception of his master Sansovino, while the previously mentioned Vincenzo Scamozzi (volume 2, page 222), a many-sided and much employed architect, in his numerous works closely adheres to the conceptions of his great master Palladio.

In southern Italy no important architectural activity appears in the period under consideration. As a work meriting examination may pass in any case the church of Gesu nuovo in N Naples.(1584) by Pietro Provedo, a central design with elongated cross arms lying on the main axis; its showy internal d

decoration is from a later time.

The SECOND EPOCH OF THE BEST PERIOD (see General, page 7) took its start in Rome from an early work of the talented Lorenzo Bernini (15599-1680), a Florentine born in Naples, who first a sculptor, then turned to architecture and finally was engaged in painting. This work is the altar canopy beneath the dome in the church of S. Peter at Rome (1633). In it the master undertook a nearly complete breach with the traditions previously in force. He placed on a high marble base four c colossal bronze columns with twisted and luxuriantly decorated shafts, crowned it by an entablature rising freely from t the composite capitals, returned and curved inward on the axes, heavy with draperies (executed in relief), above which rise upwards four massive volutes and combine above the centre as the supports of a crowning terminal member. (Fig. 23). Here architecture, sculpture and painting are most intimately combined harmoniously in an extremely Barococ expression. B Bernini has indeed given therein a fatal example for the further development of architecture and decoration, to which may be referred the responsibility for numberless aberrations of his successors. With a true storm of inspiration was this w work taken up by contemporaries. In his further works Bernini again returned to quiet paths, and in not a few of them m manifested a striking and astonishing feeling for monumental treatment in general, as well as for a charming development of the architectural and ornamental details. With the angle towers above the main facade of the church of S. Peter, projected by him, which according to his ideas had too little height in proportion to its width, he did not have a fortunate hand. He was compelled to take down again the already constructed tower by the sinking of the foundations. The main facade of S. Peter's is thereby free from additions, which would only have been injurious to its effect. On the other hand Bernini secured undying fame by the treatment of the Place before S. Peter's (completed in 1667). With an indeed refined calculation of the perspective, he understood how to enhance the impression of Maderna's facade. He first arranged the g ground before the church in a gentle inclination upwards, and

he placed colossal steps extending the entire width of the P Place with low risers; then he added to the facade at each side low wings, converging somewhat towards the front; with strongly accented horizontal divisions (in order to allow the contrast to appear stronger between these and the facade), a and finally he enlarged the internal forecourt so produced i into a colossal external court of elliptical plan, which he enclosed by the famous colonnades (Fig. 24), consisting of 284 travertine Doric columns with entablature and balustrade. A masterpiece similar in style was then completed by Bernini in the Scala Regia, an imposing stairway with picturesque perspective of columns and magnificent internal decoration leading to the chapel of the Vatican. (Fig. 25). His church della Assunzione at AAriccia (1664) and of S. Andrea in Quirinale at Rome (1678) are impressive central buildings of plain and dignified form. In secular architecture palace Odescalchi at Rome is his chief work. (Fig. 18). The system of the middle projection of his facades with a colossal order of pilasters extending through two stories and standing on a high lower story, treated as a base, became a prototype for the entire succeeding period. Bernini was the most esteemed artist of his age (page 68). Even more in sculpture than in architecture, he pointed out the way for a full century.

The second great master of the best period, Francesco Borromini (1599-1667; page 8), at first colleague and later a strong competitor of Bernini, developed further the previously originated forms in the most consistent manner. His entirely picturesque and harmonious basal feeling, that should exhibit the structural members even at the first glance in the diagonal position, most favorable according to him, as well as in the endeavor to present interesting and capriciously animated architectural works even in narrow streets, induced him to introduce into architecture the curved surfaces of facades, broken pediments, scrolled cornices and cartouches in peculiar applications. In the ground plans of his churches he preferred the central building in a certainly very free transformation. With the little church of S. Carlo alle Quattro Fontane (1640-1667) he first laid down his artistic programme in

a startling manner. Then followed the likewise curved facade of the oratory of S. Filippo Neri (about 1650), also striking by the novel and capricious enclosures of the windows, the d domed chapel of S. Ivo (Fig. 26) in the court of the Sapienza (University), and the tower of S. Andrea delle Fratte in Rome (Fig. 3); the two last works displaying the extreme consequences of his style principles. It was Borromini, who furnished the long venerated church of S. John Lateran in Rome with Barocco internal decoration, thus creating a precedent in such a prominent place (the Lateran church is the cathedral of the bishop of Rome), that was a fatal one for numberless churches. In secular architecture he was chiefly engaged in restorations (on palace Spada, palace Falconieri etc. in Rome). In Frascati he built the important villa Falconieri, which he restrained within quiet forms. (Fig. 18). On palace Barberini in Rome, begun by Maderna, Borromini at first worked together with Bernini. The former constructed the beautiful oval main stairway with a well opening supported by doubled columns. The facade was indeed the most important of the 17 th century in Rome (Fig. 27) and was assigned to Bernini. Borromini took this as a rebuff, which led to a violent enmity toward Bernini, that finally ended in the suicide of Borromini. Like Bernini he was a highly gifted master, who understood how to impart a powerful artistic individuality to his works in spite of all extravagancies. With these masters the famous Florentine painter Pietro Berrettini worked on palace Barberini, called Cortona (1596-1669), who as the influential creator of magnificent ceiling decorations is placed in the series of t the chief masters of the Barocco, but who likewise as architect exercised an activity in Rome meriting consideration, of which famous evidence is given by the very tasteful facades of the churches of S. Luca e Martino on the Forum (1640) and of S. Maria della Pace. With the Roman architects of the best period is yet to be mentioned the also very important Carlo Rainaldi (1611-1691). His church of S. Agnese on the Piazza Navona (begun 1651) is a domed structure over a Greek cross. Its very imposing facade has two flanking towers, between which the middle portion recedes in a curve. The animat-

animated architectural lines give an extremely expressive architectural form to the great square, which occupies the site and form of the antique circus of Domitian. (Fig. 28). Also for the church of S. Maria in Campitelli (1665) Rainaldi chose the central plan, yet with a transformation of the scheme in the manner, that it allowed the Greek cross to be followed by a domed area with a choir apse. The interior affords a g great prespective charm. The facade bears rich ornamentation on projecting columns with strongly projecting returned entablature, and likewise the facade of S. Andrea della Valle (page 27), designed about the same time. Rainaldi was also the creator of the two small but nobly treated domed churches at both sides of the Corso on the Piazza del Popolo. In the second period of the Barocco styles also falls the greater part of the activity of the Jesuit Father Andrea Pozzo from Trient (1642-1707), probably an Italianized German named Brunner) as painter and interior architect. This was an extraordinarily fertile master, who in his sham architecture painted with astonishing accuracy reached the climax of Barocco ornamentation intended to enhance the feeling of spaciousness of the interior. His characteristic work of this kind is the fresco on the ceiling in the church of S. Ignazio at Rome (1670). B But Pozzo also attained high fame by his splendid altars executed in the most costly materials, particularly by the altar of S. Ignatius Loyola, the founder of the Jesuit Order, in t the church Gesu at Rome. (Fig. 12). He was the grand master of perspective, on which he wrote a valuable manual, and he also designed architectural monuments, but which were never executed. * The school of Pozzo was continued by the artist family of Bibiena, originating at Bologna. The Bibienas still belong to the second period; but their climax falls after 1700. Their most important member was Fernando Galli Bibiena (1657-1743). They were the chief masters of theatre decoration, and as such, as also by the design and execution of theatre buildings, carried on an abundant activity for a century, both in Italy as well as in Germany.

** In one of these designs occur the very daring "sitting" columns, with which one occasionally meets as pilasters in*

stucco decorations in south German churches. They are employed in places where the height is lacking for modelling in relief a full pilaster. Then the upper part of the shaft appears as if slid into the lower portion; the junction is then marked by springing acanthus leaves. (Fig. 113).

Outside Rome and its immediate vicinity the Barocco style in its second period only occasionally came to an independent development. In Florence the great painter Pietro da Cortona, with whome we have already become acquainted as an architect in Rome (page 33), and others in the decorations of the halls of palace Pitti (1640), in which the surfaces of the walls a and particularly of the ceilings have heavy and extremely ostentatious stucco enclosing borders , adorned by ornaments, shell work and the like, and animated by rich figure sculptures, divided in panels with splendidly colored paintings, gave the ideal of an imposing festal and ostentatious interior decoration. The direct successors of himself and of Buontalenti (page 29) endeavored to follow a middle line for their buildings between the Florentine and the Roman palace architecture. Genoa retains in the works of the much employed Bartolommeo Bianco (volume 2, page 234) the character belonging to the preceding period, yet closely adhering to the architecture of the Genoese late Renaissance. In Milan F. M. Ricchini, though still chiefly classical in design, led the late R Renaissance into the Barocco. His principal work is the grand new building of palace di Brera (1651), whose imposing columnar court is counted with the most beautiful of the 17 th century. The same tendency is pursued by certain not unimportant masters in Bologna. In venice the architecture of this period passes through a splendid advance by means of the richly endowed Baldassare Longhena (1604-1682). In his works is expressed a very happy combination of the preference peculiar to the Venetians for ostentatious ornamentation with a refined feeling for powerful architectural treatment. His palace Pesaro (about 1650) repeats on one lower story of diamond paneled ashlars in two stories the motive of Sansovino from the Library of S. Marco. It is reckoned among the most imposing palaces of Italy. On palace Rezzonico (1680) he placed Doric

columns before the rusticated ground story, so that all three orders were employed in the usual sequence. His principal w work is the wonderful church of S. Maria della Salute (1631-1687), located at the entrance of the Grand Canal. It is an octagonal central building with outer aisle. The drum rests on eight massive Composite piers; the side thrust of the dome is transferred to the external walls by elastically curved v volutes, for which the projecting chapels serve as abutments. To this central building of entirely novel design is mainly attached opposite the portal the proper altar space, certainly with little organic connection. The impression of the church from the canal is unusually grand. (Fig. 30). Longhena's works are scarcely inferior to those of Bernini in originality and artistic importance; yet Longhena restricts himself f far more within the limits of a nobly conceived Renaissance than does Bernini. The example given by him had a determining influence on the later Venetian architecture. In Turin the temperamental Theatine monk Guarino Guarini of Modena (1624-1683) entirely enrolled among the followers of Borromini, without inspiring his buildings with that artistic life, that is characteristic of those of Borromini. He erected in Turin several churches and palaces, among which the vast palace Carignano (1680) represents his chief work. He was likewise employed in Sicily. In the church of S. Gregorio erected by him at Messina, he gives one of the most daring examples of Barocco caprice. The other churches of Sicily in most cases were influenced by the Roman columnar churches, and were furnished with the most luxuriant marble facings, richest in color (S. Domenico in Palermo). Naples had in Cosimo Fansaga (1591-1678) its principal master of the Barocco period. His architecture adheres to the Roman school of Borromini, yet also permits the recognition of Genoese influence. Like all Neapolitan churches, with reference to the frequent earthquakes, his churches have low domes; the interiors exhibit a lavish and ostentatious treatment (S. Martino; Fig. 9).

The PERIOD OF THE LATE ITALIAN BAROCCO STYLE (see General, page 10) had to record its first grand works just when the architectural ideas of one of the most scrupulous masters of

the preceding period were transformed into facts in Turin. There the important Filippo Juvara (1685-2735) established the Superga (1616-1631) on a hill about 2 1/2 miles outside the city, a monastery design with a church having a highly m monumental effect. (Fig. 31). The church is built at the end of an enclosed rectangle as a central building with a majestic and severely classical Corinthian portico, an imposing dome imitated from the the church of S. Peter, and two flanking towers on the wings terminating the court side. On palace M Madama in Turin (Fig. 5) he created the beautiful western facade executed in marble and the magnificent double stairway. (1718). His chateau Stupinigi allows the recognition of French influences in the ground plan. * The tendency struck out by Juvara was continued by L. Vanvitelli (1700-1773), a son of the Netherlands born in Naples, who yielded still more than the former to French influences, and who aimed to establish in the colossal palace at Caserta (1752 begun), built for the king of Naples, a princely residence with the magnitude and splendor of the palace at Versailles. The immense facade is 830.1 ft. long, but it has a comparatively tasteless effect; yet the stairway (Fig. 14) is indeed excelled by no other in regard to grandeur of design, importance and richness of treatment. Very interesting is the theatre of this palace; it has in its plan and treatment entirely the form of the modern theatre building. In Rome the Spanish Stairs were built in 1721-1725 by Alessandro Specchi and Francisco de'Sancti, rising from the Piazza di Spagna to the church of S. Trinita de Monti (Fig. 19), and still proceed chiefly from the basal feeling of the flourishing Barocco style. The same may be s said of the famous Fontana de Trevi (begun 1735), on which Niccolo Salvi (1699-1751) in a brilliant manner represented the "rushing triumphal entry of the water" into the eternal city in a picturesquely composed festal architectural work, richly adorned by sculptures and refined by classical treatment of the details. Visibly further advanced in the direction of a severe academic conception of architecture was Alessandro Galilei from Florence (1691-1737), who before his activity in Rome was long in England, where the Palladian class-

classicism had struck deep root. The facade of the old Lateran basilica erected by him (after 1734) exhibits the system also chosen by Madama for S. Peter's church, of a great Roman order with an attic crowned by statues, but in a far more impressive form. On the somewhat later facade of the basilica of S. Maria Maggiore (1743) Ferdinando Fuga (1699-1780) employed two orders with portico and picturesque loggias, which however lack purity of detail forms. On the court of palace della Consulta near the Quirinal (1739) Fuga also added one of these sham extensions in the principal axis, such as were so frequently attempted in the preceding period. As the last important work of the expressed Barocco style is to be mentioned villa Albani (after 1758), world famous for its art treasures, by Carlo Marchione, a grand and very imposing design, such as are but seldom found on Italian soil. (Fig. 33). The garden facade opens in the ground story in continuous pier a arcades with rusticated pilasters, which are flanked by Ionic columns as supporters of the archivolt. Among the buildings originating in Venice in the first half of the 18 th century palace Corner della Regina and the splendidly treated Jesuit church (Fig. 4) by Domenichino Rossi yet occupy a place worthy of consideration. According to their artistic character t they remain in the school of Longhena. -- Other masters of t the Italian Barocco style we shall know later in considering the works erected by them beyond the Alps.

** Gurlitt assumes, that the French master Germain Boffrand (pages 78, 101) exerted a determining influence upon the treatment of the ground plan of chateau Stupinigi. (Gurlitt, Geschichte des Barockstils, des Rokoko and des Classicismus in Belgium, Holland, Frankreich und England. Page 270).*

2. Architecture in the Period of the Barocco Style in Spain and Portugal.

I. General Basis.

In the 17 th century Spain lost its high position in great politics. The Hapsburg royal family never understood how to properly administer and to preserve the vast inheritance fallen to it. Philip IV (1621-1665) indeed maintained a magnificent court, fostered and supported the arts and sciences; b

but also he did not stop the decadence of the state, that commenced under his predecessors. Under his government bloody revolts broke out in Spain as a result of open violations of the individual rights of the provinces, of the mismanagement of the state finances, and of weak opposition to the measureless encroachments of the court favorites, which in combination with the costly and unlucky wars against France and England destroyed the prosperity of the country and crippled its external strength. The national possessions were constantly reduced. The decadence became general in the second half of the 17 th century. Only after the beginning of the 18 th century with the accession of the royal house of Bourbon (1701) to the government, did better times come to the country. Art did not keep equal pace with the political development. The political advance occurred too rapidly and was due too much to external events, for the intellectual life to follow it. This attained its climax only at a time when the political h highest point of the nation had already passed in the 17 th century, thus in the age when Spanish poetry produced a Lope de Vega and Calderon de la Barca, and which in painting saw masters like Zurbaran, Velasquez and Murillo. The deep misfortunes in the inventions expressed in their works and the high national self-consciousness in combination with the love of ostentation peculiar to the Spaniards also was expressed in the architecture. More than before and in consequence of the continued financial decadence of the nation was art restricted to the court and the church. The problems thereby proposed required an important increase in the artistic means of expression in the sense of Baroque architectural principles, that proceeding from Italy also found entrance into Spain. It could not fail, that the Barocco, which had already properly reached its full maturity in Italy and had attained to universal development, should then celebrate its wildest and m most extravagant orgies just in Spanish lands, that had at c command an extraordinary abundance of decorative expedients, whose artists already inclined by nature in their exuberant imagination toward a limitless tumult of forms, and with a people, whose enjoyment of luxuriant ornamental work was so

long suppressed under the reign of the severe style.

II. Historical Development and Style.

The transformation of Spanish architecture to the Barocco style occurred in the second decade of the 17 th century. A About 1620 its conquest was decided. The new conception was expressed from the beginning substantially in the decoration. As in the Plateresco (volume 2, page 237), this brought the special endowments of the Spanish into the clearest expression. The architectural system continued in the architectural style developed by Juan de Herrera (volume 2, page 243), which was no farther developed, aside from the grouped arrangement and the keeping of the architectural members. The monumental appearance of the more important structures permits the influence of Herrera's architectural tendency to be clearly recognized.

Until the end of the 17 th century the works of the Spanish Barocco style, at least in the subdivision of the masses, bear an entirely quiet character. Frequently may be seen a leaning toward Roman-Florentine art. Only the treatment of doorways and windows and the ornamental finishing of preferred parts of the building on the exterior as well as the interior results in ostentatious Barocco forms, and sometimes in a richness carried to the most extreme limit. (Fig. 34). From 1690 onward set in the best period of the Spanish Barocco style. Its development is connected with the works of a native architect, Jose de Churriguera (1650-1723) from Salamanca, a learned and extremely fertile artist, whom his countrymen celebrate as the Michelangelo of Spain. From him the Spanish Barocco received its peculiar coloring; he created the Churrigueresque style named after him. This indeed adhered to the basal architectural course relating to the arrangement of the supports (mostly hermes) and cornices for dominating the masses, but passed into the most capricious mixtures of styles, repetitions, curvatures and perforations, clothing the whole in such wild and abruptly applied decorations, that the structural idea almost completely disappeared. (Fig. 35). Thus o originated at least in the later and extremely labored climax of this style wonderful show pieces, that interest observers

accustomed to the art conceptions of Italy or of northern countries, as if they sprang from the feverish form impulses of an indeed very richly endowed but diseased and overexcited b brain, which employs its dim recollections of style in a most debauced Barocco, and in an Indian heaping up of the members for a fanciful structure, and has plastered and hung this over and over with richly framed pictures and cartouches in relief, with garlands, wreaths, strings of fruits, shells, draperies and the like. We have in this style, which received unlimited approval by the Spaniards, indeed the most extreme climax of the Barocco style, in contrast to which the extravagancies of Brooomini appear like severe academic compositions. The Churrigueresque style is a phase closely allied to the Plateresco (volume 2, page 237). It shows its particular strength in the decoration, and was chiefly employed on preferred portions of the structure on the exterior and the interior, especially on portals, altars, in sacristies and the l like. But it there goes to the extreme limit possible (Fig. 44) in the breaking of lines, cornices and surfaces. In the treatment of the interior even, it has taken part in but a slight measure in the great problems, as they were solved in Italy; in this respect it remained far behind Italian art.

Churriguerism indeed captivated the masses of the Spanish people to a great extent. It maintained itself in undisguised character until the end of the period. But it never attained absolute supremacy. It was unavoidable, that Jesuitism should exercise a deep influence in the strongly Catholic country, that appeared in the entire civilized and intellectual life and particularly in the architecture. On its works was shown earliest and most distinctly (already from the end of the 17 th century) the turning from Churriguerism toward a s severer conception in the sense of the masters of the last p period of the Italian Barocco returning to classicism. Jesuitism surpassed in its first creations the model of the church Gesu in Rome (volume 2, page 227) on Spanish soil, but there introduced a change, in so far as it made the arrangement of galleries over the side chapels the rule, also continued them to the entrance end and devoted them to the clergy, so

that they were separated from the people. Here thus appeared the system of the court church (in a manner similar to the p palace chapel at Versailles and the court church at Dresden). The choir thereby lost its importance. For the congregation was designed the hall-like room for preaching with the side connected chapels. Since Jesuitism chiefly carried on its c contest for the spread of the church by the spoken words, pointed by the weapons of science and of classical culture, the chief stress was laid on the impressive treatment of the room for preaching. In the developed court and preaching church was inserted between the inner principal room and the series of chapels extending around it another special aisle for the use of processions. Over this aisle were arranged galleries.*

** The developed type of this kind is shown by the former J Jesuit church of Nuestra Senora de Belen at Barcelona, between 1681 and 1729.*

This type was only employed by the Jesuits for the churches for congregations erected by them. For the churches of their own Order, they chose the central structure (Fig. 36), which more clearly expressed the unity and exclusiveness of the Order and the equality of the members, than did the plan with nave and galleries. The architecture exhibits the ground lines of the Italian Barocco, yet with numerous accessories in the Spanish style, chiefly expressed in the decoration and i its distribution, and in the magnificence of the colors. (Fig. 37).

Another spirit took the lead in the art life of Spain, when after the death of Charles II, the last of the Hapsburgs on the throne of Spain, Philip V, the nephew of Louis XIV, inherited the Spanish crown (1701). The new monarch from the house of Bourbon, a branch of the French royal house of the Capets and his (second) wife, a born Farnese of Parma, with a f feeling of the supremacy of the contemporary art of their native lands, sought to bring the art of Spain to the height of those of France and of Italy, and to develop a court life as magnificent as that of the sun king at Versailles. They called foreign artists, especially Italians, to Spain, and in a accordance with the tendency of the time toward a learned con-

conception of art, founded academies of art after the model given in Paris in order to obtain new strength for the culture of art. Thereby also in Spain was adopted the Italian= Classistic tendency of the Barocco style (Fig. 38). Until then the native masters had chiefly fallen into the development of overrich and decorative ostentation; now the attention was also devoted to the solutions of the ground plan and the creation of the interior for themselves. The severely scientific conception of art and of its problems proceeding from the academies and zealously fostered by the nearly absolute court, worked in increasing measure to clarify the Barocco, dominated by the Churrigueresque abundance of forms. T The time came when also in Spain the books of Vitruvius were translated into the national language, and his instructions were esteemed as the highest manifestation of the art spirit. The Barocco style was indeed too deeply rooted in the people, for it to be quickly suppressed by learned studies. The entire first half of the century is filled with the contest of Barocco ideas with the classistic endeavors, and even in the second half in the buildings of the most important native masters of this time, of Ventura Rodriguez (1717-1785), celebrated far beyond the frontiers of Spain, the Barocco architectural idea had influenced the creations of interiors with all purity in the expression of form. In Rodriguez' worms was completed the change from the late Barocco, already moving in quiet paths, to the expressed classicism.

A phenomenon of special interest to the history of architecture in the Spanish art of the Barocco period is the Plate s style. This was directly derived from the art of Herrera the Elder (volume 2, page 243) as an independent severe tendency with the aim of developinm stone construction as such, which asserted itself beside Churriguerism during the entire Barocco period, even if under limitations to a relatively small d domain, and indeed to the northwest, that portion of the country in which the Spanish blood had received the strongest addition from the immigrant Celts. This style has its name from the express use of plates as an architectural and ornamental motive. The plates are partly circular or are cut out in

ovals as rings, later with lower edge cut as drapery, and finally with dry outlines in the lines of the northern overlaid ornamentation. It forms both panels, as connecting members between the windows and architectural members, and also particularly plate hangings like consoles, frequently recalling much in Moorish art (volume 1, page 209), which on cornices and wall strips clearly show themselves as supporting motives. (Figs. 39, 40). The Plate style in accordance with its entire nature is removed in a far less degree from these requirements, that about the middle of the 18 th century caused a r restoration of Spanish Barocco architecture in the sense of classicism. Consequently with ease and without entire abandonment of its former ground principle was completed the return, furthered by Rodriguez, to Herrera's grandeur, clarity and simplicity, thus to that art style from which proceeded the Plate style.

III. The Most Important Monuments.

In Spain the Barocco style was already prepared for in the creations of a master still belonging in time to the high Renaissance of Francisco de Mora (died 1610). He was a pupil of Juan de Herrera (volume 2, page 243), his colleague and t the finisher of his works and after his death, court architect of Philip II and III. He began entirely in the style of his master, but soon developed greater freedom and a richer treatment of forms. His nephew and successor, Juan Gomez de Mora (died 1648), after 1611 the highest architectural official of Spain, was actually the path-breaker of the Barocco. The grandeur of his designs and the novelty of his ideas of form found the liveliest approval. In the plans of the buildings and even the structural system he adhered to the path traveled by his predecessors. He indeed treated the structural members in the classical sense. On the contrary he executed on the enclosures of doorways and windows a previously unknown and lightly animated play of lines and forms, with which he introduced an entirely free and genuine Barocco treatment of the architectural members (page 106). On the Jesuit College of La Clerica in Salamanca begun by him in 1617 (completed 1750) with a magnificent court, whose facades are sub-

subdivided by a colossal order of three-quarter Composite columns, the Barocco richness fully appears. Beside him worked the gifted Alonso Cano (died 1667). The importance of this master lies in this, that he replaced the wall columns by rectangular wall piers or by wall strips, and as the walls were animated by circular or elliptical medallions, for these were substituted thin plate hangings cut out below and overlaid o over each other, whereby he became one of the founders of the Plate style. In the arrangements calculated for picturesque effects, the utilization of perspective effects and the freedom and the intentional novelty of the form, he characterizes himself as a master of Barocco. His principal work is the f facade of the cathedral at Granada (after 1652). On this he employed strong buttress-like wall piers to divide the facade into three parts, and connected them above the second story by round arches, which with the low superposed balustrades s serve as the termination of the facade. The facade thereby acquired a subdivision into three deep round-arched niches and thereby a very strong effect of shadows; but on the whole it rather makes a picturesque, theatrical impression like a triumphal arch, rather than that of a church. The repetition of the motive of the round arch above the portals, in the windows and the medallions has a tiresome effect.

More important, particularly as also a creator of interiors, was Francisco Herrera the Younger (1622-1685), the builder of the first great Spanish cathedral in the Barocco style, Nuestra Senora del Pilar in Saragossa (Zaragoza), which was begun in 1677. The ground plan has the Spanish church scheme of t the high Renaissance in its highest development as an enclosed rectangle, 442.9 × 213.3 ft., of three aisles with chapels around it between the buttresses. The structure supports on massive piers covered by Corinthian pilasters a great main d dome, two side domes over the middle aisle, and four low domes over each side aisle. (On the transverse axes lying between the middle domes). The angles are accented by four towers, but one of which was completed at a later time. The effect on the exterior lacks all organic development. (Fig. 41). The interior received after 1753 by Rodriguez a facing in Roman=

Classistic forms. (Page 56; Fig. 49).

With the appearance of Jose Churriguera (page 43) commenced the best period of Spanish Barocco art. His first work is t the tower of the late Gothic cathedral at Salamanca, in the sacristy of which he combined in a very confusing way the Gothic. The starting point of his high artistic fame is formed by the catafalque of queen Marie Louise of Bourbon designed by him. (In March, 1689). This catafalque had for Spanish Barocco art the same importance as Bernini's high altar in S. Peter's church at Rome for the Italian (page 6). According to the design remaining it was constructed in the architecture of the triumphal arch with an arch between piers with flanking double columns and with a niche above it, the very high framework being loaded and hung over and over again with decorative work. (Figure decoration, draperies, flags, wreaths of leaves and of fruits, Barocco cartouches and ornaments, e emblems of death etc.). For numerous portals and altars this design became a direct model. Churriguera's principal work is the city hall at Salamanca, a structure entirely designed and also apparently erected by him, whose centre of gravity lies exclusively in the facade, while the ground plan was evidently treated quite superficially. The massive three story facade has five axes. Only the two outer ones are flanked by composite half columns (indeed with reference to the originally projected but never executed tower-like angle structures). On the middle portion containing the three inner axes, the p piers in the lower and second stories are subdivided by narrow vertical projections, in the upper one by hermes. The ground story opens by five arches, that on the middle axis being about one half wider than the others, therefore terminating in a depressed arch. A balustrade with statues and gable turret over the middle space as a bell turret crowns the too richly treated facade.

Among Churriguera's pupils is Narciso Tome, likewise a purely decorative creator, has been made known especially by his portal of the university in Valladolid (completed 1715; Fig. 42), and Pedro Ribera, who surpassed his master in regard to capricious overloading of forms by his extraordinarily ostentatious facade for the Hospital Provincial, now Hospital of

Madrid (after 1622), which is most strikingly characterized by the Churrigueresque style. (Fig. 35). On the palace (casa) of Marques de Dos Aguas in Valencia (Fig. 43), erected 1740-1745 after the design of the painter Rovira, he shows a more picturesque conception, inclined toward the south German Rococo. The latest, in the animation of surfaces and members a and the breaking of lines going to the extreme stage of the style, is visible in the sacristy of Cartuja in Granada, a s small hall church decorated by the lay brother Francisco Manuel Vasquez in 1727-1760. (Fig. 44). Here even the shafts of the piers are covered by curved mouldings, that roll up in v volutes and are beset by other heavy ornamental members heaped on each other. The ornamentation betrays Indian-Mexican influences fostered in the South by the commercial relations with the colonies, and it surpasses in Barocco overloading all that the other western art can offer anywhere.

The Jesuits completed their most important architectural undertaking in the Jesuit College established on the birthplace of the founder of the Order in Loyola (begun 1689, roughly completed 1738), for which an Italian master, Carlo Fontana, furnished the design. The plan has the form of an entirely symmetrical and very wide rectangle with three internal courts, of which the middle one is arranged on the main axis behind the church. The church is treated as a circular domed interior, around which extends a concentric outer aisle (Fig. 36). The drum and the dome are supported by eight massive piers. Before the entrance lies the portico opening by three round arches and projecting from the facade. (Fig. 31). Opposite it stands the high altar in a niche in the external wall. The entire interior is covered by colored marbles and j jasper.

Under the Bourbons, Filippo Juvara (page 38), whom Philip V had called to Spain, attained a position dominating the court architecture of Spain. By him is the design for a new and m magnificent Royal palace at Madrid. The ground plan exhibits a rectangle formed by four wings, which enclose a square pier court. Juvara died in 1735, even before the occupation of t the building. His pupil and successor was Giovanni Battista

Saccheti, likewise an Italian born in Turin (died 1769), adhered to the plans of Juvara, even if he reduced the dimensions somewhat (to 374.0 × 393.7 ft.). In the year 1737 the building was commenced. On the principal axis lies in the ground story a wide but shallow entrance hall, behind being the proper vestibule, on the right of this the main stairway in three branches, whose plan and treatment recall much in palace Caserta (page 39; Fig. 14). In the upper story one passes f from the main stairway first into the anteroom of the halbardiers located over the vestibule, and then into the great columnar hall. Besides the anteroom of the halberdiers in the front wing (over the entrance hall) lies the throne hall. Adjoining these principal rooms are arranged the living and guest apartments. From the vestibule one directly enters the court porticos. In the rear wing the palace chapel is placed on the main axis. The facades follow the system previously developed in Italy:-- rusticated ground story (the ashlars with continuous horizontal joints and without visible end joints), above this being a colossal Doric pilaster order with massive main cornice and a crowning balustrade. Only on the moderately projecting angle portions and the very slightly p projecting middle part are employed Roman fluted half columns. (Fig. 45). In the internal decoration French art won here a determining influence. Chinese motives were soon mixed with the somewhat clarified Barocco forms, and thus was also developed in Spain a sort of Rococo, even if not in the same graceful perfection as in France. The forms are dryer, appear more as if collected together and not as if done at one time, as in the French Rococo. (Fig. 46). But otherwise the interior of the Royal palace is richly and splendidly equipped. From 1749 onward Ventura Rodriguez had the superintendence of the construction. It was occupied in the year 1764. Saccheti also erected in 1739 the garden facade of the Royal palace of Ildefonso (Fig. 38), designed by Juvara entirely in the s spirit of the late Roman-Classistic Barocco. The general design was by Teodoro Ardemans, who was born in 1664 at Madrid as the son of a German belonging to the king's lifeguards, a and he later enjoyed much high esteem also as a painter, as

well as an architect and the highest architectural official of the country. The building was begun in 1721. It has its greatest extent in depth and not in breadth. The nucleus of the building encloses a pier court on all sides. Before the main facade lie parallel to the principal axis two wings with angle pavilions, a court of honor with open front left between them. The palace church is added on the transverse axis passing through the middle of the pier court. The great double stairway in three flights lies on the main axis at the r rear facade. In the architectural treatment are combined influences of the Mansard school with Churrigueresque forms of details. The profiles exhibit the peculiarities of the art style of Borromini. The middle building of the garden facade (Fig. 38) was designed by Juvara but erected three years after his death by Sacchetti, and is entirely in the character of Roman-Classistic Barocco of the Italian school of Fontana and Juvara. The colossal park is grand. Its plan permits the recognition of the grand lines of French garden architecture of that time, yet with a stronger predominance of nature. The palace of Ildefonso, the favorite residence of Philip V, can be compared with Versailles only in regard to the garden design. The extensive palace in Aranjuez, newly built on the site of the old structure burned in 1665, erected in 1728-1752, for which the court architect P. O. Idogro and after his death, Teodoro Ardemans furnished the plans, by the royal command received entirely the architecture of the severe French art of Blondel's tendency.

The church architecture of this time produced its highest work in the new cathedral at Cadiz, begun 1720 but first dedicated in 1838. It is a basilican design planned by Vicente Acero (died 1722), consisting of a three aisled nave 180.5 ft long, but only composed of three narrow bays and extended by side chapels, a transverse aisle with the width of the middle aisle projecting in apses from the side walls, and an adjoining central choir building. This is arranged on five sides of a regular octagon, with a wider opening of the central room to the middle aisle, and with choir aisle and a circle of chapels as a continuation of the side aisles and chapels of

the nave system. The total length amounts to 374.0 ft. The facade is formed of a middle building with a great semicircular terminal niche and triangular pediment with two low angle towers, round below and polygonal above. Above the crossing rises a principal dome, and in the choir over the high altar treated as a circular temple is a subordinate dome. The preference for curves in the ground plan, the diagonal position of the projections from the piers treated as three-quarter columns, the heaping of the members and the ornamental accessories allow the recognition of the Churrigueresque basal ideas, even if also otherwise the detail forms are designed rather severely in the classical sense. Acero also designed the facade of the cathedral at Malaga (begun 1724; volume 2, page 242), distinguished by its rich columnar architecture. On this in each story as well as at the corners of the square flanking towers 275.6 ft. high, as well as on the piers of t the recessed church facade in two stories and subdivided in three parts, are pairs of fluted columns on high pedestals f furnished with broken entablatures. The show piece of the external church architecture of the Spanish Barocco style is t the facade built by Jaime Bort, an acclimated Hollander, for the cathedral of Murcia, dating from the middle ages, on which the clarity of Netherlandish art is combined with the freedom of the art of Borromini, and the ostentation of the Churrigueresque style into a splendid and certainly purely ornamental show piece. (Fig. 48). In the first works of the much employed Ventura Rodriguez (page 47), who like scarcely any other Spanish architect enjoyed the confidence of the court and also of the people, dating from about the middle of the 18 th century, the Barocco architectural spirit still influenced the treatment of the interior, the picturesque tendency and the moderate subdivision, while the form expression held itself afar from the Churrigueresque freedom. At the church of S. Marcos in Madrid built by him in 1749-1753, the plan is composed of four ellipses, whose sequence produces a strong enhancement of the impression of the interior toward the third and largest ellipse forming a domed room. In the interior subdivided by a colossal Composite order of pilasters predominate Classistic forms. After the completion of this church

the master devoted himself to the Vitruvian-Roman tendency. This guided him in the construction of the cathedral of Nuestra Senora del Pilar at Saragossa (page 49) undertaken in the year 1753, whose internal architecture (excepting that of the chapel of grace built in the middle aisle, where with all severity in the profiles he could not entirely avoid Barocco o ostentation), he restored in expressed Roman-Classistic forms (Fig. 49). He likewise built the single completed tower at the southwest angle of the church; while retaining the old p plans. For his later church buildings Rodriguez preferred the central plan. To a great number of mediaeval churches he gave new facades. Among these is that of the cathedral of Pamplona (completed 1783) characteristic for the style of his later time by the picturesque treatment, and by the members kept in severe and heavy forms. The master here completed t the old design by a church wall crowned by a triangular pediment and statues. He placed before its angles square towers not projecting beyond the side walls, between these being a corridor-like portico with projecting portico of four columns and a parapet balustrade over its recesses. The mouldings recall those given by Herrera the Elder to his church facade of the Escurial. (Volume 2, Fig. 285)).

The Plate style appears in its form world, entirely supplanting all other ornamental work as pure and refined in the interior of the church of S. Francisco in Santiago de Compostella built by Simon Rodriguez. Here the capitals are transformed into Plate drapery like consoles. (Fig. 40). The chief work of the Plate style is by Casas y Novoa (died 1751), the facade of the cathedral in Santiago de Compostella built after 1738. (Fig. 50). It consists of a lofty middle building crowned by a pediment and two lower wings, behind which on R Romanesque substructures two massive towers rise to a height of 229.7 ft. In the general appearance is combined the expressed vertical tendency of the Gothic with the ground principles of Barocco architecture and its luxuriant wealth of forms in the happiest manner. The striking development in height, the great enjoyment in the treatment of the pediments by curves, volute and obelisk terminations, with many motives

from the northern overlaid ornament, that is here transformed into Plate work, permit recogintion of a strong influence of the Netherlandish late Renaissance and of the Belgian Barooco. The Plate style maintained itself in the domain ruled by it, owing to its architectural tendency allied to the Classistic conception of art, in some smaller works for nearly three decades beyond the time, at which in the other parts of the country the Barocco style had already been overcome.

PORTUGAL. Under the strong pressure for extension by Philip II of Spain, Portugal lost its independence from the Hapsburgs in 1580, but this was again recovered in 1668 in consequence of the weakening of the Spanish state. But Portugal never more succeeded in an independent development in art. The great hospital in Braga (about 1650) with the church facade flanked by two towers still remained within relatively quiet and clear forms, which frequently recall the south german early Barooco. The palace there on the contrary bears a very luxuriant ornamentation, and likewise the house of the Mexican (Fig. 51), whose heavy expression of form was strongly influenced by the Belgian Barocco. The principal work of the Portuguese Barocco style is the Royal palace with the monastery at Mafra, a colossal structure with the same purpose as the Escurial in Spain (volume 2, page 243), yet planned in still greater dimensions that that, as a rectangle 725.1 × 823.5 ft. with nine courts. The angles are accented by strongly projecting pavilions with ogee curved domical roofs; the middle of the principal facade (Fig. 52) is o cupied by the richly subdivided church facade with two towers, behind which rises the church dome elevated on a high drum. In spite of its magnitude and the immense expenditure, under which the s small country became poor, this building can raise no question of artistic importance. As architect is named a German, Johann Friedrich Ludovici from Regensburg. Juvara from Turin erected in Lisbon in the years 1731-1734 the Royal palace of Ayuda and the Patriarchal church in the style of the Classistic Italian Barooco. About the middle of the 18 th century, there also came into use in Portugal as into the adjacent country the severe Classicism with its intentional contrast to

the Barocco, its tasteless and rigid correctness.

8. Architecture in the Period of the Barocco and Rococo Styles in France.

I. Historical Development and Style.

The political advance made by the French state after Francis I, and that was retained in the entire 16 th and 17 th centuries, had as a result a gradual transfer to France of the political centre of gravity. Also in this country had the reformation developed violent strife and bloody wars through t the activity of the Huguenots, from which Catholicism came o out victorious, indeed without succeeding in completely overpowering Protestantism. By the edict of Nantes (1598) on the one hand the Catholic faith was declared to the the religion of the state, and on the other Protestantism was publicly recognized as a religious association. As in Italy and Belgium the church also in France zealously cared for its internal defense and strength. The abundant ecclesiastical activity developed by the counterreformation urgently fostered its relations to the intellectual and social life of the nation.It was chiefly the transmitter of the intellectual and artistic impulses proceeding from Italy. But the Huguenots likewise were not inferior in activity to the state church in the provinces dominated by them. They had found their adherents in the citizen class in the cities and showed themselves as actual representatives of a more intelligent and expressed conception of the national life and art. In the Netherlands the opposition led to an entire separation. In France the greatly strengthened kingdom formed the power, that dominated and comprised all tendencies; it drew Catholics as well as Huguenots into its service. The opinions expressed by these partly resulted in independent creations beside each other, partly alternately influenced each other, and partly combined in a common freely chosen work.

By the internal conditions of the French state was required, not only the highest development of all persons at command, but also their harmonious working together as much as possible. Richelieu's administration (page 61) had as a result a general

centralization of the power of the state and of all public l life, from which the capital Paris derived the greatest benefit. It became the centre and starting point of all the intellectual and artistic interests of France, a city filled with a splendid life and with great aims. The tense national feeling pressed toward independent activity, for freedom from Italian tutelage in questions of culture and of intellect, f for independent appreciation of the antique also native on French soil, and of the laws of art transmitted by it. At t the same time the kingdom developed into an unlimited royal power. The inclinations of the absolute monarch were devoted to an externally most impressive personification of the monarchical principle. By the nationally proud and vainglorious French people the ostentatious development of court life found support and public approval. Thus in the internal and external conditions, France found all bases and impelling forces for an indeed divided, yet by its entire nature free, national and magnificent evolution of art.

In a still higher degree than in the period of the Renaissance did art then receive an expressed courtly character. Its entire development was connected with reigns of the different monarchs and with the activity of the artists preferred by t them. At the time when Richelieu commenced his epoch-making labors as a statesman (1624) until the majority of Louis XIV (1661), was completed the transition from the late Renaissance to the Barocco. When the king grasped the reins of government, to become his own minister and even to guide the fate of the country, the Frenchr Barocco style set in in full force. Under his long reign this developed into a specific national art style. During the Regency (1715-1723) the Barocco style then matured into a very interesting transition stage to the last appearance of the style developed from the late Renaissance, the Rococo. *

* *The name "Rococo" is derived from "rocaille", a shell or grotto work, which plays a great part in the new world of form. It is generally common in Germany. The French name the different phases of the style, as in the Renaissance, after the names of their kings. (Volume 2, page 247).*

Thus we have to distinguish four style phases in the period of the Barocco and the Rococo in France.

1. The early Barocco (style of Louis XIII"), which still prevailed in the minority of Louis XIV, thus falling in the time from 1625-1643.

2. The developed Barocco ("style of Louis XIV") from 1643-1715.

3. The early Rococo ("style of the Regency") from 1715-1723, whose style coloring however continued to about 1735.

4. The developed Rococo ("style of Louis XV") from 1723 ((or 1735) to 1750.

We shall see in the following, that the appellations of "Barocco" and "Rococo", in application to the art styles in the respective epochs are not generally correct, that rather the artists working beside each other went different ways, corresponding to the before mentioned diversity of their views and the inequalities of the court influence, and in part pursued entirely opposed aims. In general may be distinguished three principal tendencies. One is that of the proper Barocco masters. These willingly adopt the influences proceeding from Italy and work them over in the national sense. The others are rather theorists, classicists, adherents of a severe academic conception of art and of its problems. The third occupies a position between the two, is inclined sometimes more to one or the other side, or it decides, as finally became t the general rule, for a severe classistic style in the external architecture, and in the internal for a free conception of art in the sense of the flourishing Barocco or Rococo. Hence in considering the species of styles, we shall also sometimes mention the leading masters, who are to be regarded as their principal representatives.

The early Barocco style was introduced by Jacques Lemercier (Le Mercier, 1585-1654), a pupil of Salomon Debrosse (volume 2, page 284), the architects favored by Richelieu. Lemercier was in Italy for several years, there became acquainted with the art style of the Barocco, which he willingly adopted, but gradually clarified it in the sense of the French spirit. T The conditions were indeed in France different from those in

Italy. The court life produced peculiar and new requirements, which were first to be considered in palace architecture. Instead of the Italian palace, grand in itself, vainglorious, but quite inconvenient in the arrangement and treatment of t the proper living apartments, were required first of all habitableness and comfort. In Italy public, social and family life was chiefly spent on the great squares, in the streets, the loggias and the courts; but in Paris already on account of the climate, it was developed in the salons and the more private rooms of the family residence. Assemblages were indeed not rejected. The absolute monarchy and great nobles emulating it rather demanded the development of external magnificence as well, and perhaps more than in Italy. But less was required for the street view than for the rooms, in which the courtly and social life passed. The French chateau must therefore afford a very impressive and convenient habitation according to the number, the dimensions, and the sequence of the social and living rooms, and in regard to the tasteful arrangement of the small rooms and the corridors for the housekeeping and the servants. For the manner in which these were to be attained, the wife, who at that time played a great part not only in society and politics but also in the art requirements, had a determining influence according to tradition. It is stated that queen Maria sent her own architect to the talented Marquise de Rambouillet, well known for her good influence on famous countrymen, whose mansion (Hotel d'O) passed for the ideal of habitable and comfortable arrangement. In this occurred the arrangement, where the grand stairway was transferred from the middle axis to the side of the entrance hall in order to obtain an unbroken series of rooms on the garden facade. The dimensions of the rooms varied with their purposes. For the more intimate affairs were provided smaller rooms. The marquise had placed the doors beside the windows on a continuous axis. When about the middle of the 17 th century the famous lady was frequently confined to her bed in consequence of illness, she caused the bed in her sleeping room to be enclosed by a balustrade as a screen, and thenceforth received there the visits of her more intimate

friends. the example given by her found imitation. The sleeping chamber with the state bed became the favorite apartment of the French chateau. (Fig. 83). Also in other matters the treatment of the ground plan of the Hotel d'O as a model influenced the royal buildings.

The higher and lower nobility adopted the court forms. It no longer personified the independent chivalry, trained in m military service, but an intellectual and intellectualistic society of the salons, that busied itself with politics, science and art, and pleased itself by the care of the person, court etiquette and high life. To externalities and the court ceremonial was devoted the greatest attention. It was regarded and treated almost as a separate and important science. As in everything else, so also in the plans of the residences of the nobles and even in the mansion of the well to do private citizen was determinative the model given by the court.

By Louis Levau (Le Vau, 1612-1670) and Pierre Lemuet (1591-1669) followed a typical development of the ground plan of t the city mansion (hotel); the latter laid down the requirements relating to it in a standard work published in 1647. A According to this the buildings for the residence, if possible, should not be erected directly on the street, but should be separated from it by a forecourt. In the building itself only the housekeeping and subordinate rooms should lie on the street side, but the apartments intended for the residence should be arranged on the garden facade. In the middle should be placed the great festal hall, at both sides of which should adjoin the "antechambers". The line of this room or suite should terminate in the sleeping chamber. The external architecture -- and this characterizes the French conception-- should retain a simple, bold and distinguished appearance on the street facade and on the court next the street, but should be rich and splendid on the garden facade. Thus the architectural effect was first of all determined for the occupant of the residence and his guests, since only these had admission to the garden.

The architectural treatment by Lemercier shows in the conception and the treatment of details a strong influence of It-

Italian forms. Yet the specific French taste in art is attested by a firm adherence to pavilion architecture, to the high roof over each separate portion of the building, and to the refinement of the members and of all details. On the whole is apparent less monumentality, but greater elegance and charm. Levau had employed in his first period the Italian Barocco motives in a free choice and beside the northern. But in his later time was completed a transition to the national art style. He frequently omitted the orders; angle quoins and wall strips appeared in their places. The wall surfaces often received a subdivision by enclosures. With the rejection of t the great architectural expedients came the tendency to refinement of details. Lemuet in his first works was still entirely dependent upon the masters of the French high and late Renaissance, but he showed himself later accessible to Italian influences, when he employed the architectural members and Roman ornamental work in a tolerably severe conception.

All these masters were excellent in spirit and in internal as external and formative creative power by the important Francois Mansart (1598-1666). He not only studied zealously the works of the Italian theorists, but likewise the antique, in order to penetrate as deeply as possible into the mysteries of its effect. He desired to furnish architecture by itself with full effect, independently of decorative work in relief. He sought its beauty by its own expedients. He first brought into well conceived relations the required rooms in their areas, arrangement and construction, and then devoted the greatest attention to the treatment of their details. B But he also desired to obtain a national style, and therefore paid great attention to the masters of the French Renaissance. By the steep roofs rising above the principal cornice, the v vertical dormer windows breaking through them, * and the tall and monumentally treated chimneys, he produced a very animated outline and thereby a powerful total effect of the superstructure, by which was required a certain restraint in the e effect of the masses in the subdivision of the facade. For the architectural treatment he employed for the exterior and the interior the architectural orders of columns or pilasters

in the most charming grouping and in an extremely noble, conceived as severely classical, very finely designed profiles. (Figs. 54, 55, 78). Francois Mansart was an independent and powerful artistic individuality. The series of forms prevailin Italy in his time were most thoroughly refined by him in the sense of the French spirit, striving for charm and elegance; he was a thoroughly national master, whose ground principles and aims were nearly allied to those of Debrosse. He indeed never entered the service of the king.

* *These dormer windows were later commonly termed "mansards" after Francois Mansart, and the form of the broken roof preferred by him also received the name of "mansard Roof".*

The developed Barocco style of Louis XIV takes its start f from the activity of a master, whose ground principles in many respects were entirely opposed to those of Mansart, of Charles Lebrun (1619-1690). Beginning as a painter from the s school of the severe N. Poussin (died 1665), who had penetrated into the spirit of the antique more deeply than any of h his contemporaries, and from whom a certain scientific conception of art had been transmitted to him, he betook himself to Italy (1642), where the art of Pietro da Cortona (page 33) e exerted a determining influence upon him. In the year 1646 he commenced his rich activity in Paris. Here he showed himself a highly gifted representative of the advanced Italian Barooco style, which was diverted by him into the course of the French art taste. In his works Lebrun took architecture, sculpture and painting into his service in equal proportions, but had at command all richness in materials and technics, p personifying with perfect certainty the entire meaning of the ostentatious court existence. The entire series of forms of Italian art was accepted by him, but was transformed in the French sense in regard to a more classical severity, particularly in a very moderate use of curves, and a finer and properly subdued forms of details, enriched by a daring naturalism, in which he excelled all Roman architects of that time. Lebrun employed the architectural orders of pilasters (Fig. 56), when he intended a grand effect, but he preferred otherwise broad and showily treated enclosing borders for subdivi-

subdividing the walls and ceiling and for enclosing windows, doorways, reliefs, paintings and gobelins. * In an extremely fanciful may the different moulded members were adorned by freely treated egg-and-dart and foliage mouldings, pearl beads and the like. Luxuriant enamel work, in which acanthus scrolls with fleshy modeling, but with very finely treated leaf outlines and naturalistic rosettes of leaves played the chief part, animated the panels, the broken angles and the caps.(Figs. 57, 80). The material on the walls is marble for the structural members, stucco for the enclosing borders, bo both on the walls and the ceilings, in combination with rich gilding.

** Gobelins are tapestries woven by hand and representing e entire paintings.*

It was not surprising, that the show-loving king Louis, with the most impressively conceived personification of his power and his personality, and after he had learned his capacity and his art skill, should have given his entire confidence to Lebrun, and on the erection of his residence palace at Versailles, should have given to him the magnificent problem. Lebrun was the most influential architect of his time in France, the creator of the French Barocco style striving for magnificence, that afforded to the passionate monarch the desired background for his luxurious and animated festivals.

Lebrun had gradually supplanted all other architects in the favor of the king. But the art style developed by him could not secure supremacy in the domain of the art life of Paris, nor permanently in that of the royal court. The adherents of the severe classical conception represented by Francois Mansart sought to work in his sense, and they had important men of the intellectual aristicracy on their side. The erection of the Louvre was to be a test of strength in the contest of the two tendencies in art. In the year 1664 the French government arranged a competition for obtaining the plans for t the still lacking east wing, for which Levau and his pupil d Dorbay had furnished a design kept in the ancient style, as they believed. The most esteemed architects participated in it, among them being Francois Mansart, Lemercier, Jean Marot

and Pierre Cottart. The plan furnished by Francois Mansart obtained the approval of the government; but its execution failed, since the master would not subject himself to the obligations proposed to him. Because men could not agree in t the acceptance of another design, Bernini (page 30), who passed for the most skilful of all living architects, was required to give his opinion on the designs presented. Bernini h himself came to Paris. He was received there with princely honors, such as were neither shown before nor later to an artist. He rejected the works offered and prepared a project himself, that was restricted entirely to the enclosed monumental character of the Italian palace architecture of the Barocco period. (Fig. 58). But since he had paid no attention to the national French taste in art, as it had been trained especially by Mansart's works, he thereby found no approval. W Without having reached any positive result, he must again return to Italy. Now the influential French poet, Charles Perrault, a zealous defender of severe classical requirements, went to the principal minister and the king with a new plan prepared by his brother Claude Perrault (1613-1688). The decision -- indeed in view of the preference of the king for the majestic and harmonious effect of the columnar architecture-- in his favor. Bernini's design and another plan made by Levau were rejected, Perrault's was adopted and executed. (1667-1674; Fig. 61). Claude Perrault was originally a physician, who busied himself greatly with architecture. He translated Vitruvius into French (1673) and in a very clear presentation, and he appeared in speech and writing for an artistic and philosophical mode of considering architecture and i its problems in close relation to the antique. Thus beside the flourishing Barocco of Lebrun also came into favor at the court the severe classicism.

The Louvre competition had produced a strong contest on art questions in public opinion, under the impression of which a and chiefly by the urgency of the borthers Perrault, the founding of an institution followed, that in future should become the starting point and support of classicism, that of the Royal Academy of Architecture. (1671). The task was proposed to

it to impart public instruction on the rules of architecture, as they are given by the most distinguished monuments of antiquity and the works and writings of the great masters, particularly of the highly esteemed Palladio. As an instructor and leader of the institution Francois Blondel (1618-1686) was called. He was previously a mathematician, then an artillery officer. In his office as instructor, his literary w works, his designs and executed architectural works, he showed himself as an expressed adherent of a severe classicism. In his great work, "Cours d'Architecture", that appeared in 1675 in Paris, he first returns to the antique in regard to the explanation of the five columnar orders, and not merely to the Roman, but also to the Grecian, which he places higher in the power of design than the Roman. He adopted the orders as conceived by Vitruvius and the later theorists Vignola, P Palladio and Scamozzi, and with regard to their scientific b basis by Leon Battista Alberti. (Volume 2). He established a theory of proportions extending to all parts of the orders of columns, whose "module" was to serve as a basal condition for a perfectly harmonious effect, since every variation from it produced a discord. With particular emphasis he rejected the heavy ornamental work of the Barocco style, devoted to an error in taste in his opinion. The tendency pursued by Borromini he designated as the very worst sin against good taste and against the laws of beauty.

Blondel even plainly went farther than Perrault in his classistic demands. The latter desired to recognize in the "orders" not a definite law fixed for all times, but only the harmonious course of the architecture of the ancients, which one in other times and with other views might change according to his own design. * But Blondel had most adherents. He was a distinguished teacher and therefore exercised a very strong influence upon the architects leaving the Academy.

* *How freely Perrault opposed the antique is very strikingly shown in his works and measurements for the Louvre. The wing erected by him rises about 13.1 ft. higher than the court facade by Lescot. In order to remedy this mistake, Perrault constructed an entire story instead of Lescot's half sto-*

story. Since the lower retained facade already had the Roman or Corinthian order, and the placing of a Tuscan or Ionic order above it appeared inadmissable, he desired to produce a new French form of column, even surpassing the Corinthian order in lightness and elegance. To obtain ideas and suggestions for this, the king at the request of Perrault in the year 1671 ordered a general competition among artists. The result was entirely negative. With peculiar transformations P Perrault himself chose as new ornamental motives for his capitals a crown and feathers-- men did not advance beyond the old forms. -- Blondel, the director of the Academy, saw in t the lack of results from Perrault's proceeding the best evidence of the correctness of his own demands.

The king retained at the time in which the contest about t the facade of the Louvre went on, and even later still his task for Lebrun and the art style cultivated by him. Certainly it also became generally perceptible in these changes; there was completed, even if slowly and inconspicuously an approximation to the severer classistic conception. The cause of this is indeed to be sought less in a change in the mind of Lebrun, than in the influence of the court. Even for Louis XIV came a time in which he was satiated by his pompous a and luxurious court life and longed for restraint and simplicity. He became conscious of the weakening of his life of the senses and the transitoriness of his grandeur. The misfortunes by which his family was visited, did not remain without influence upon him. His mind and strong nature longed f for something higher, for the unchangeable, and he bowed before the divine. The "sun king" was growing old and became a man of the deepest piety. Court festivities became rarer and more moderate. The king remembered his duties to the state. He desired to return to simpler and natural conditions.

These changes also soon appeared in the art of the court. The youthful and extravagant ostentation became clarified in an increasing degree to an orderly restraint and correct formality corresponding to the refined customs of the court in an academic sense in the philosophy of art. The principal representative of this later style of Louis XIV was Jules Har-

Hardouin Mansart (1346-1708), a grand nephew of Francois Mansart. After Lebrun's death, he was the artist most esteemed by the king. As a pupil of the Royal Academy he had received a severely classical training, but in his further work undertaken together with Lebrun on the palace of Versailles, he adhered in regard to decoration to the art tendency of that master. His art in design was nearly allied to that of his great uncle Francois Mansart. Thus were combined intimately in his creations the national classicism with the Barocco of Charles ebrun. The extravagant luxurianceof form was clarified from nonessential accessories, the unquiet curves of the lines were lessened by the predominating straight line. The structural members received a lighter treatment, less claculated for effect of the masses. Otherwise Hardouin Mansart preferably employed the colossal order and in general great expedients. The ornament, whose basis was still the acanthus leaf in full modeling allied to the scroll work of the Roman imperial period, yet treated with more delicate and graceful outlines, remained in combination with naturalistic accessories, but with a freer organically developed drawing in symmetrical arrangement. Hardouin Mansart thus created a truly n national style, distinguished in effect as well as elegant a and attractive. (Figs. 59, 60, 83).

The restraint practised by the court, particularly after t the end of the 17 th century, was but unwillingly followed by the French nobility and the higher classes of the population. Externally indeed men held under the ban, in social life as well as in architecture, on account of etiquette the formerly too much restricted passions. So much lack of restraint was enjoyed in the interior decoration. To ornament fell a part incomparably more important than before. It was developed in a remarkable manner. The artist that created the ornament of the developed Barocco style was Jean Berain (died 1711), born in Lorraine, who in an interesting way combined the arabesque motives of the Holland-German Renaissance with the grand types of the Italian acanthus ornament. Instead of the heavy scroll work he treated that band surface ornament with the graceful linear scrolls, an example of which is given in Fig. 61, and that characterized the matured stage of the Bar-

Barocco style. The preference for curves thenceforth formed the ground ideas for the internal decoration, which strongly reacted on the architectural members. Bold lines also soon transgressed esthetic laws; in the manner by which classical symmetry subordinates these, we recognize the different stages of development of the Barocco style. The late Rococo exhibits the extremest limit of this freedom as opposed to classical severity in its ultimate consequences.

When the great king, who as scarcely a second monarch exerted an overpowering influence on his contemporaries, closed his eyes, and duke Philip of Orleans undertook the regency f for the still minor successor to the throne, a man that followed his unbridled temperament and gave himself to an enjoyment of life at the court, more luxurious and unrestrained, t than had ever been the case with Louis XIV, who was certainly not temperate in this respect, which almost abruptly and firectly introduced an entire transformation of customs. The regent held his court in Paris; his palace Royal became the scene of wild nocturnal orgies. By the example given by him in Parisian society the restraints were removed from the long s suppressed passions. A general immorality stongly overflowing all former bounds was the consequence. Dishonest and conscienceless members of the Bourse recommended and conducted a financial management, which with deceptive show promised i infinite riches. The mercantile system had placed the fostering and practice of art as useful and necessary. The interest in architecture increased in the highest manner. The regent himself was greatly endowed intellectually. He devoted a lively interest to art. In the severe symmetry of the late style of Louis XIV indeed he found no satisfaction. The wild arrogance by which he, the court, the state and society was dominated, demanded its own artistic expression, freed from all restraints. The development of the Barocco entered into a new phase.

The style of the regency (the early Rococo) had its path-breaking and determining artist in the court architect of the regent, Gille-Marie Oppenort (Op den Oordt), (1672-1742). His father was a Netherlandish cabinet-maker; he received his tr-

training first from Hardouin Mansart and then in Italy. There he closely adhered to the chief masters of the developed Barocco style. Already he was termed by his contemporaries the "Borromini of France". In his numerous designs for doors, windows, mirrors, mantles, cartouches, mural decorations and the like, reproduced in copper engravings, he stands nearest the known Italian masters. But he drew the outlines more carefully and thus more freely, without reference to the classical models. All is designed in relief and its principal field is the interior decoration. Oppenort believed himself to create in the spirit of the antique, yet with a freer and more energetic hand. In regard to the main lines of the decoration, he did not depart too widely from the traditions of t the late Renaissance, when he retained in the great halls the subdivision by pilasters, even if in a purely decorative way. In contrast to the preceding epoch an expressed enjoyment of bold forms made itself felt. In the smaller halls and living rooms panels took the place of architectural members, and now entered into close relations with the ornament. Broad bands with elastic profiles enclosed not only doorways, windows and mirrors, but also divided the wall surfaces into panels betweenthe wainscoting and the cornice, within which was developed a complete panel decoration, so far as they were not filled by paintings, gobelins or reliefs. Parallel to the main enclosures then first extend inner ornamental mouldings, that were again accompanied by narrow strips, which at top and bottom swung boldly around the angle and lost themselves in the manifold interlaced web of the curves of the panel ornamentation. The inner ornamental strip was soon seized by the movement. The longitudinal bands of these pass by broken angles or rounds into the side bands and are finally entirely lost in the middle lines, ending in volutes, that curve against e each other; from them the ornament mostly develops in the form of palm leaves in shell-like treatment, connected with leaf motives, around which graceful main and subordinate lines are curved. Finally the centre bands are also seized on by the movement, and thus originates everywhere that peculiar a animated interlacting of bands, that forms the ground idea i in the most matured Rococo. (Fig. 63). Yet the evolution of

the ornament does not stop with this stage; it develops farther in its animated course. The curves soon lose their elasticity, become weaker, less restrained and finally appear only as loose curls, which are slightly held together at the points of contact. The acanthus leaf likewise loses its original form; it becomes an elongated sedge-like leaf, on which the original leaf outline is scarcely longer recognizable. The shell is a favorite element. During the regency shells are loosely inserted in the ornament as separate basins. In this, besides the influence of the Renaissance always recognizable in the general arrangement, lies the characteristic mark of the style of the regency. For with the transformation of the shell to one forming the basis of the entire ornament begins the series of forms of Louis XV.

In the evolution of the style of the regency with and beside Oppenort, Robert de Cotte (1656-1735) was highly esteemed as decorator, also as architect and took a prominent part. As a pupil of Hardouin Mansart he was at first inclined to a classical, though lighter and more graceful mode of treatment. He treated the ornament more delicately in relief, but as becoming richer in Naturalistic accessories. Over his creations appears a refined taste. Instead of the painting, he preferred to place, especially over the mantles, mirrors as an innovation much imitated later. (Figs. 64, 68, 88). Cotte was an extremely fertile artist, in whose creations one may follow the style changes from the severer classicism of Louis XIV to the matured Rococo. Fig. 64 gives an example of his mode of decoration from the last years of the 17 th century. We shall farther on (page 78) become acquainted with his later style. Cotte was also an instructor and after 1699, director of the Academy of Architecture; as such he formed a school among the younger architects. A similar tendency was manifested by the likewise very important Lassurance the Elder, (birth-name Cailleteau), who died in 1724, but had a greater tendency to bolder forms, richer ornamental work in relief, particularly on facades, and to unrestrained peculiar creations in the sense of Barocco treatment. Jean Baptiste Alexander Leblond (1679-1719) was allied to him in spirit and went

still farther in the problem of treating the ground plan. He required the most favorable connection possible of the living rooms with the garden, and therefore freferred one story buildings raised by a few steps above the ground. Even when the stables were to be included in the dwelling, they were to be entirely separated from the living rooms, and the same for t the kitchens as far as possible, in order to prevent any penetration of odors into the occupied rooms. For the entire p plan and the distribution of the rooms primarily regard for the convenience of the owners must determine. For the erection of the formerly common and usual steep roofs no reason e existed, since the space thereby obtained was not required - the owner should have no disturbing noise over himself; rather should the flat "Italian" roof be preferred. Hence since Leblond also laid down these ground principles in literary form and was esteemed a very able architect in artist circles, he permanently influenced in his sense contemporaries and later architects.

In the development of the ornament the famous painter of t the early Rococo, Antoine Watteau (1684-1721) among others t took part in a very great measure. He developed the grotesques of Berain further, when he enclosed his very charming idyllic shepherds and the like with the scrolled bands of Berain, but still he gave to them a more quiet course than Berain, and a more delicate relief than Oppenort. Watteau was also the artist that utilized the first systematic influences of Chinese art, that became known at that time by the mediation of the Jesuits and of the Dutch marine commerce in the West. By the extraordinary approval, that his paintings and drawings met with in the important world -- no other artist so strikingly reproduced like him contemporary society in its free thoughts and acts, the unrestrained enjoyment of life in the midst of free and charming nature -- the preference for the Chinese therefore became general, as well as for the exotic.

The mature Rococo (style of Louis XV) exhibits its apparent changes in style by the works of a master, who indeed was chiefly engaged in art industries, but by his few works and designs in the domain of architecture had a path-breaking infl-

influence, of Aurele Meissonier(1693-1750). It appears that the example afforded by Guarini (page 37) in his native city of Turin aroused the unrestrained art in design slumbering in him, and forced him into the tendency pursued by him. Meissonier was already regarded by his contemporaries as the inventor of the specific Rococo forms. He stands in the same relation to the style of the regency as Oppenort to the later s style of Louis XV. The Barocco ideas as already represented by Borromini he carried to their most extreme consequences. The ground principle of the classicists he regarded as pedantic requirements of a vanquished time. The straight line was almost completely rejected from ground plan and elevation. In its palec occurred curves of animated curvature. In the endeavor to be restricted to no repetitions in the decorations and to always present new charms to the eye, he rejected in the ornament symmetry in favor of asymmetry. The increasing enjoyment of nature * he expressed by the introduction of a crisp naturalism in the ornament, yet without conventionalism, since it must lead only to a pattern-like and monotonous treatment. The entire handling of the ornament experienced an entire transformation by Meissonier. For the principal motive he took the shell. As an organic object and still consisting of a solid material was this so suited to be an intermediate between plant and architectural forms. But its use resulted in Rococo ornament in an entirely free and novel manner. Its basis appears as a soft and plastic material, which spreads in the peculiar swell of the upper surface of the shell with its rows of pearls and its too thick edge, according to the main lines of the ornament in the plane, or is kneaded i in the hollows, runs luxuriantly over the border and clings to it, disappearing in the most delicate relief at its ends. (Figs. 63, 67, 69, 70, 71, 86). An overflowing naturalism lends to some its special charm. Elongated sedge leaves accompany the enclosing band and grow out of the ornament or pass directly into the shell form. Natural flowers in the most charming grouping as light and elegant garlands, loose branches with fluttering leaves wind around out of the shells, fill the angles and twist about the bands. Gushing water, stalact-

stalactite forms, and unfolded wings are gracefully added in the lightly animated flow of the fanciful forms.

** Likewise in contemporary literature, particularly in Rousseau's inspiring writings and the tendency of poetry to shepherd idylls and the like, the aroused and impulsive feeling for nature finds its characteristic expression.*

Thes ornament was principally developed by Meissonier in h his works in the art industries. But also for its use in architecture he made (after 1726) numerous and astonishing designs, and also gave famous examples in certain architectural structures. (Page 100). A fixed system was secured by the a architecture of the Rococo period through the activity of the royal architects, Robert de Cotte and Germain Boffrand(1667-1754). We have already mentioned the former among the principal masters of the regency. As successor of Hardouin Mansaart and first architect of the king (after 1708), he also exercised under Louis XV for a decade a determining influence on the architectura of the court. His style tendency shows in the last time an entire abandonment of architectural subdivision of the wall in favor of panels, in which the curves predominate in ever bolder curvature, and the ornament passes from the character of the regency to that of the Roccco. In the cartouche and shell work the naturalism ever appears stronger. For wall coverings marble and stucco are less employed than wood, thereby being compelled a finer band and ornamental work. Likewise in this stage we recognize in Cotte's works that dignified elegance, which is peculiar to the Mansart school.

Boffrand is the great master of the fully matured French Rococo. He was likewise a pupil of Hardouin Mansart and a teacher in the royal Academy of Architecture, in which he represented the good principles established by Blondel. He added all the acquisitions of the French artists preceding him, had practical and correct views, and was an enterprising man, in whose artistic endowment were combined a tendency to the grand with an expressed sense for effective rhythm of the masses, for rich ostentation and splendid treatment of details. For the form of the ground plan he required in his literary

works the most thorough attention to habitability in the highest sense of the word, to convenience, to sanitation and to refined feeling. The building must in its entire appearance clearly express its purpose, and the rooms by their dimensions, in their arrangement and internal treatment must entirely correspond to their purposes and the customs and habits of their occupants. For the entire architectural treatment he required an imposing simplicity. Symmetry -- opposed to the views of Meissonier -- must pass for a fixed law. Borromini's and Guarini's art style was a great sin against every esthetic f feeling. The consequences of the Italian Renaissance and of Classicism thus further influenced through Boffrand.

With the ground principles laid down by him in writing his architectural works are not always in harmony. Boffrand was an artist nature too strongly inclined to rich decoration, f for him to restrain this always within the measured paths of an imposing simplicity. His forms of ground plans are not s seldom labored and artificial, even if carefully designed. He sometimes falls into purely ornamentally treated forms of facades, and there, where he passes all restraints, appears a stiff and often purely external distinction. In emphasizing the principal points, both in the facades as well as in the internal decoration is expressed his grandiose feeling; in treatment of details he develops an unsurpassed charm.

Boffrand had compressed his art style within definite and c clear rules. With his unlimited importance as royal architect and artist, the masters leaving his school willingly adopted this art style and almost impulsively, so that the works created by them exhibit an entirely unified character. The ground plans were thoroughly worked out as if by meditation, with an expressed pleasure in round forms, certainly withconstant attention to perfect symmetry in the design of the building. To the chateaus was given a previously unknown extension in length, in order to produce the most tasteful perspective effect externally. Already for this reason commonly originated one story designs. Generally only the middle and a angle buildings heve several stories. A certain preference for long and narrow halls (galleries) appears almost everywh-

everywhere. The distribution of the rooms followed in the p previously given arrangement. For one story structures the stairways were naturally omitted. For the external architecture new structural elements were no longer produced; for them the adoption of the Rococo style indicates a return to simplicity and plainness. The facades received a Barocco refined by graceful treatment and mostly weakened, or even a plain and quiet classicism with well profiled horizontal continuous cornices. (Fig. 38). In the ground story instead if rustication occur continuous and deeply sunken horizontal joints, w which are radial in the arches of the doorways and windows. In the second story, that contains the rooms for the proper court assemblies, in the richer treatment of the middle building, it mostly receives Ionic columns without flutes, the frontispiece an order of pilasters, while the intermediate surfaces remain almost always undivided. Before the middle building, especially on the garden facade, were frequently p projected balconies on columns. The pediment with the prince's arms and the crown, sometimes in bold curves, rises as an expression of festal magnificence. Not seldom all Barocco forms are avoided, and only by the adoption of ornamental details on the portals, the enclosures of the windows and the pilasters, is still indicated the Rococo. In most cases the entire exterior exhibits a flat, cold and plain treatment.

The interior then experiences so much the more a luxurious treatment. There the Rococo sets in place of pompous ostentation a coquettish grace, in which an unrestrained but also elegant and refined love of life is expressed in corrupting splendor. The ground idea of the subdivision of the wall surfaces transmitted from the Barocco and the regency is retained. But the original forms of the structural members are lost; they gradually appear as exclusively ornamental motives, in whose form treatment the statical problem is now merely i indicated. Consequently also all stronger forms disappear on them. They become ever weaker and finally entirely vanish, only still forming an elegant framework in the easily moving stream of the panels, that now are intimately connected with the ornamental work, and appears as a decorative system -- in

which the forms vanish in a manner unexpected heretofore.

The use of these panels follows in an entirely symmetrical arrangement. In nearly all rooms the vertical angles of the walls are rounded. In the wall surfaces lying between them, by the doorways and windows and the mantle placed on the middle axis with the great mirror is determined the division into panels, which then receive the enclosed ornamentation already described. (Pages 74, 77). The main cornice ever becomes flatter. It finally forms merely a crowning band, rises above the roundings and the middle axes and bends in volutes around the cartouches, that are transformed into wonderfully scrolled shells. The transition to the ceiling is made by means of a great cavetto (vault). In this the stucco ornaments play over the ceiling in a free and bold movement. Charmingly modeled little child figures, for which Francois Boucher also (1703-1770),important as a painter and interior architect,furnished extremely attractive designs, in his numerous engravings of ornament, with flowers and emblems of the sciences and the arts, hunting and fishing, agriculture and gardening, pursue their gay sports. The ceilings receive richly colored p paintings (page 19), or elegant network thrown around a widely radiating rosette treated as a shell, and whose outer ends are mostly lost in the stucco work of the vault. Thus even the ceiling is drawn into the interlaced and luxuriant panel covering the entire interior. (Fig. 70). Not only in details but also in the general lines is all relief in animated movement, fluttering as in the wind. In elegant and gracefully attractive application the stucco is modeled in freehand when applied. Everything appears as a directly springing outflow of a flourishing, fanciful art imaginationl creating with astonishing ease. Because the ground surfaces are toned in light color like ivory, from which the panel mouldings and ornaments gently rise in white, silver or gold, and the leaves and flowers are frequently in a delicate and naturalistic coloring, these interiors have a relatively quiet and imposing general harmony. In the style and the application of the ornamental work the greatest possible attention was paid to the purpose of the different rooms. In general men sought

always to heighten the effect in the apartments designed for the court festivities, in order to prepare the guests at the entrance through the main portal for the impressions to be expected. To the vestibules was given a dignified and relatively simple treatment, kept in the monumental style of architecture. From thence grand stairways with broad steps and elegant railings lead to the upper stairway landing, which was r richly treated. The principal halls adjoining this exhibit a grand and splendid treatment intended particularly for assemblies. In the smaller halls and living rooms the pomp yields to the requirements of habitability and comfort. This is the case in the furthest measure in the small chateaus in the country, that bear the names of Hermitage, Solitude, Carefree, (Sanssouci) and My Rest (Monrepos) and the like. They owe t their origin to the ever more deeply felt need of the higher society to reserve themselves from time to time from the enervating life of enjoyment and the stiff etiquette of court life within simpler and natural conditions. Louis XIV gave for this a model example, when at the time in which occurred the transformation in the opinions of his life (from about 1670 onward), he had erected the Hermitage at Marly and spent several days there each week. It consisted -- it was destroyed in the revolution -- of a main building manifestly influenced by Villa Rotunda, a housekeeping building detached from it, and six small pavilions, each of which was arranged for two occupants.

On these country chateaus the French garden style also attained its richest development. The type of plan of a nobleman's garden created by the Renaissance (volume 2, page 200), and by the Italian Barocco (page 24), was extended in France in the course of the 17 th century to a garden architecture strongly expressed in style. The principal master of French garden art and the creator of the most important plans was Andre Lenotre (1613-1700). After he had studied the Italian gardens and had laid out those of Villa Ludovisii in Rome, he entered the service of Louis XIV, for whom he first created the gardens of S. Germain-en-Laye and Fontainebleau, and then the grand design of the palace gardens at Versailles. In th-

there a wide middle avenue of more than 3.1 miles in length, extends as the principal axis of the entire gardens, the perspective view being effectively animated by different terraces with but slight differences in height, with water basins (the basins of Neptune, of Latone and of Apollo), fountains and cascades. This main axis is crossed by a great transverse canal and by a promenade arranged directly behind the palace for increasing the perspective view of the front of the gardens. The animated effect of the water was utilized in l lavish abundance. For conducting the water were constructed aqueducts of an extent and magnitude recalling antique conduits for water. The plan of the water courses and of the walks followed a network of lines with a severely architectural arrangement, developed from the endeavor to introduce the landscape into the architectural grandeur of the palace and to subordinate it to that. Conventionalism proceeded so far that avenues were arranged between dense foliage trimmed like walls to excess in the entirety. By views of Grecian temples, artificial ruins, gateways, distant villages and rows of hills, and by the distribution of a rich decoration by statues, after definite ideas mostly derived from Greek mythology, the design affords perspective surprises of every kind and-- in the sense of the time -- luxuriant artistic charm. No architectural work of the long reign of Louis XIV breathes so evidently as this garden design the spirit of the despotic monarch, who required that even the entire surroundings of his palace should express entire dependence upon his will. The palace gardens at Versailles were esteemed the highest ideal of garden architecture and were imitated at most great and s small chateaus of the Barocco and Rococo period, not only in France but in all Europe in innumerable examples.

Decorative sculpture in the period of the Barocco and Rococo styles closely adheres to that of Italy (page 17), but in the very tasteful drawing, the graceful and dignified pose of the figures, in the rich and elegant technics and the careful and refined treatment of the forms, it permits the recognition of the stylistic peculiarities of the French taste in art. Likewise decorative painting in the first half of the period

was chiefly dependent on Italian art, but it later developed a national style, particularly in the works of the celebrated Watteau, in which the spirit of the French Rococo found a striking expression. (Figs. 65, 71).

The minor arts reached a wonderful climax during the supremacy of the Barocco and Rococo styles, with the course of the time devoted only to show and the ornamental treatment of life. For the development of the established arts the state workshops founded by Louis XIV won a decided importance. Since in these the same tendencies appeared, which had an epoch-making influence on the architecture, also in the minor arts, and particularly in the furniture, can we follow all the changes of the style from the late Renaissance to the last stage of the Rococo. An important part fell to the smith's art, which attained its climax in the Barocco and Rococo period. It is indeed astonishing with what feeling for form and technical ability in the artistic chateaus of that time the elegant ornamental forms are wrought in the hard iron, just as if it were a material as plastic and flexible as soft wax. (Fig. 88). What these masters produced in numerous grilles and state gateways belongs to the most beautiful of all that the minor arts have brought forth.

II. Most Important Monuments.

I. Period of the early French Barocco style. *

* *After having in the preceding thoroughly treated of the aims and the peculiarities of style in the art creations of the leading masters, we can limit ourselves in the following to the consideration of the monuments erected by them.*

Lemercier (page 62) received from king Louis XIII, as whose architect he was established after 1618, the first great commission in the extension of the Louvre. According to his design the square of the Louvre should have been enlarged to twice the present length of its sides. He erected the pavilion d'Horloge and the adjacent half of the south wing. (Fig. 53). The external facades very plainly allow the influence of Italian art to be seen. Yet on the court side the master adhered strongly to the design of Lescot. In the year 1624 Lemercier, at the command of the king, commenced the building

of a hunting chateau at Versailles. The ground plan exhibits an elongated rectangular wing, before which two square garden pavilions project on the garden side. On the other side two wings extending at right angles to the main building and adjoining its ends form a rectangular square court ("the marble court"), that was enclosed in part by a wall. The construction was executed in ordinary brickwork with cut stone for the architectural members, employing a colossal Tuscan order for the two stories. The upper windows intersect the architrave (as on the Tuileries). The middle axes of the wall spaces w were adorned by busts on consoles. On the whole this design still bears the character of the French high Renaissance. The principal work of Lemercier is the church of the Sorbonne. (1635-1659); Figs. 72, 73). It presents the first example of the developed dome construction on French soil. The ground plan exhibits a central design above a Greek cross, before which on the main axis are added at each end two bays of the vaults. The choir terminates with a semicircular apse. The added vault bays are extended at both sides by two chapels. The outline of the ground plan forms a rectangle, from which project the choir apse and the entrance portico on the left arm of the cross. For the treatment of the facade Roman church edifices were apparently the models. Yet Lemercier -- in contrast to the usual architectural style in Italy -- also g gave a fully developed architecture to the sides. For the f form of the roof he chose the broken French hip roof, which later was generally termed the "mansard roof". The external dome is constructed without any connection with the internal one and is entirely built of wood.

Levau (page 64) was the builder of numerous city mansions (hotels), particularly the mansion Lambert de Thoringuy in P Paris, also especially famous on account of its splendid internal decoration by Lebrun and others. Likewise the excellently arranged in plan and very well preserved and treated with extreme magnificente, chateau of Vaux-le-Vicomte (now Vaux=Praslin) near Melun (1643-1661) was by him. Lebrun was again employed on the showy internal decoration. The grand garden design of this chateau is the first important creation of Le-

Lenotre on French soil. After 1660 Levau carried further the superstructure of the Tuileries at both sides of the middle wing constructed by de l'Orme (volume 2, page 261). The two angle pavilions of Marsan and Flore were also by him; because restricted by particular considerations, the master does not rise on them to the usual heght of his artistic creations. He could proceed more freely at the Louvre, where at the same t time together with his assistant and colleague Francois Dorbay, he erected the then open porticos of the south and west wings as well as the entire east wing, whereby the square was enclosed. The wings on the whole adhered to the architecture of Lemercier. The middle pavilion of the south side however shows by the colossal order there employed a monumental appearance like a triumphal arch, indeed a festal architecture c conceived as purely decorative. Levau received the most extensive and most important problem in the rebuilding and construction of the palace at Versailles, in which the king designed to reside permanently, but which no longer satisfied the demands for assemblages. The works commenced in the year 16 1661 and were on the whole entirely completed in the year 1667. Levau removed the wall enclosing the marble court of the buildings constructed by Lemercier (page 86) and he extended the inner facades of the two angle pavilions at the sides of the court by wings, that left free between them the second and wider court ("central part"). Before this middle court he then arranged a third and still larger court, the court of honor or royal court, which he included between two great wings on the sites of the old stables and subordinate structures. (Fig. 75). Thus the palace court was twice narrowed by the projections of the wings. The garden facade was extended by a new and straight line of buildings. Between the old and the advanced new facade the famous gallery of mirrors later found its place. Finally also the two outer ends lying parallel to the middle courts also received new and widely extended wings, whereby a length of 219.8 ft. was secured for the rooms. In this manner by the rebuilding of the old chateau originated a truly colossal design. The external architecture repeated that of the facades of the marble court on the

new portions enclosing the middle court. Instead of the external wings erected by Levau on both sides of the court of honor, there originated new structures under Louis XV. The garden facade has in the ground story the French rustication (continuous and deeply sunk horizontal joints) and round-arched doorways, with a subdivision by Ionic pilasters in the principal story and Corinthian in the half story above. The l long facade of the building is only animated by three projecting frontispieces, whose axes are accented by colonnades, t that rise from the ground story projecting like a plinth(Fig-76). Among the further buildings of the extensively employed Levau is yet to be mentioned the church of S. Sulpice, which he transformed (after 1655) from the old Gothic ground plan into a Barocco church with magnificent internal effect with a simple and noble treatment, yet without completing it (page 98, 235); further after 1660 with his son-in-law Dorbay he e erected the college Mazarin (now Institute of France), that has on its axis a stately domed church now used as a hall for sittings. In the form of the ground plan and the structure of this extensive design may be recognized an approximation to the Roman Barocco, not apparent in the other works of Levau.

Pierre Lemuet (page 64) has chiefly become known for his t theoretical work on the plans of mansions, but he also created a large number of model structures, among which the most important were the later frequently rebuilt palace Tubeuf-Mazarin (1633-1640), now the National Library, and the mansion (hotel) Chevreuse, finely developed in plan.

An extremely rich architectural activity was exercised by Francois Mansart (page 65). Of his numerous new and rebuilt works for secular and church uses, we have to consider his structures, that were not only esteemed by his distinguished contemporaries as great artistic works, but even now must pass as marks in the evolution of French architecture. The first of these is the chateau of Maisons-sur-Seine (or Maison=Lafitte), which the master erected between 1642 and 1651 near S. Germain-en-Laye. The plan consists of a wing erected on a rectanguarl ground plan as the principal structure, to whc-

whose front side are attached two rectangular pavilions in U form, before each of which is placed a balcony structure. T The principal wing has a middle pavilion projecting but moderately at both sides, which incloses the monumental vestibule, at both sides of which are arranged the stairs. The facades are subdivided in the lower story by Tuscan,and in the upper by Ionic pilasters, and the steep surfaces of the roofs being animated by dormers and by boldly treated chimneys. (Fig. 54). To the external treatment also corresponds the internal, in which the architectural division prevails in an extremely graceful treatment. (Fig. 55). The entire chateau is a classical work, even being designed more in the sense of the late Renaissance, noble and dignified in manner, which strikingly shows the French architectural spirit, and therefore merits our highest consideration. The second great creation of the master is the abbey church of Val de Grace at Paris, begun in 1645. In it the central design is combined with the nave system in a peculiar and artistically imposing way. The interior of the dome is not developed from the square but from an octagon with four large and four small sides. The longer sides lie on the axes. It is adjoied on the east, south and n north by three large semicircular apses. These opens on the east into the choir, treated as a smaller octagonal domed room, on the north into a square chapel, and on the south into the deep and rectangular nun's choir. At the west side joins the nave consisting of three vaulted bays, which are extended at the right and left by three square chapels with low domes on each side. In the dome piers are small round chapels accessible through doorways in the small sides of the octagon. The piers in the nave are subdivided by simple Corinthian pilasters set in pairs. In the nave from their extension above the main cornice rise coffered transverse arches, between which extends a tunnel vault. The facade (Fig. 78) recalls in its main lines that of the Sorbonne. Before the portal is p placed a great portico of four columns crowned by a gable and treated in a severely antique spirit. The drum occupies the entire breadth of the nave. Therefore in order to bring the external dome into tasteful proportions with the imposing facade, the external dome must be much extended in height. It

is built of wood and its base rests at the height of the vertex of the internal shell. It was not permitted to Mansart to live until the completion of his grandly conceived work. In consequence of a certainly not happily expressed criticism by himself, he lost the confidence of queen Anna, the giver of the commission, when the building was carried about 9.8 ft. above the ground. The completion followed, after the works had stopped until 1654, by Lemuet and some other architects of less importance. Many offensive mistakes in the proportions and the treatment of the details of the upper portions of the structure were due to them. In the noble chapel of Frenes Mansart gave an example at a small scale, of how he w would have executed the superstructure of the abbey church, if he had been entrusted with the completion of the building. Yet this church, even in the form later given to it, is a creation original in composition, grand in the treatment of the interior and very impressive in the general effect.

Among the theorists of this period we have to mention Jean Marot (died 1679) and his son Daniel Marot (died 1712). The former was severely trained in the sense of Mansart's school and also showed himself in his design for the Louvre facade as his most faithful pupil. He published very prominent architectural works of his contemporaries in engravings. His son Daniel attained greater importance, both as a practical architect as well as a writer on art. His great work "L'Architecture Francais" (appeared 1727-1751) is the best source for the history of architectural at that time. He likewise occupied himself with the study of the ancient, particularly with the temple at Heliopolis (Baalbec), but gave no space to proper barocco art, even to that of Lebrun. His designs for triumphal arches exhibit a lively imagination and a rich treatment, but remain within the bounds of the earlier French art (page 111). The architecture of the citizen class follows the example afforded by the court and the nobility, even if in a more slowly progressing and constant course of development. In the foreground of the architectural interests of the citizens stand the city halls. A beautiful monument of this kind is the city hall at Rheims, that the old city of t

the coronations of French kings caused to be erected in 1627-163_. (Fig. 79). The facade has on the ground story rustication and Doric half columns, in the second being smooth ashlar masonry with Ionic half columns, above this being a luxuriantly decorated main cornice and alternating large and small dormers as a termination. Particularly rich is the middle p projection with niche architecture, continuous balcony and g great roof gable. With all its richness the building exhibits a dignified and noble appearance. This favorable effect cannot be stated of the other civic buildings of the period, not even if they incline more strongly to Barocco forms than is here the case.

II. Period of the Developed French Barocco Style.

After Lebrun had returned home from Italy, he received his first commission in the decoration of the ceiling in the gallery of the mansion (hotel) Lambert de Thorigny (1649), built by Levau, and in the internal decoration of the chateau Vaux-le-Vicomte, likewise erected by Levau for the minister Foucquet. Louis XIV recognized on visiting this chateau the high gifts of Lebrun, took him into his service, appointed him (1660) director of the Royal Gobelins Manufactory, and entrusted to him as a most magnificent problem the internal treatment of the palace at Versailles. There the master arranged that series of state halls in the northeast wing, partly commenced by Levau, which are named from the mythological representations contained in the ceiling paintings, and that strikingly illuminate by their showy richness the splendor and power of the French crown under the rule of the "sun king".((Fig. 80). On the walls are marble and metal ornamentation, elsewhere predominating ivory colored stucco with heavy gilding. On the whole may be recognized in these apartments a constant enhancement of the means in art, sculpture and painting. Particular care was devoted to the treatment of the c chimneys. In comparison to Italian art of that time, Lebrun retained a moderate treatment with the use of the straight l line in the cornices and enclosures. The moderation of Lebrun in the employment of Barocco motives is especially evident on the Apollo gallery in the Louvre restored by him after the

fire of 1664. (Fig. 57). There instead of pilasters panels are exclusively arranged to divide the wall surfaces. The f frames are entirely dominated by the straight line. The ornament is luxuriant and full of movement, modeled in a delicacy and sharpness entirely foreign to Italian art, is added gracefully to the structural members without exceeding its limits. A splendidly developed modillion cornice without breaks surrounds the room as the upper termination of the walls. Above it extends the ceiling outward as a framework everywhere elegantly decorated by relief ornament, leaving free eleven main panels, that are filled with mythical and symbolical paintings. The treatment of the ceiling allows an influence of Cortona's decorations in palace Pitti to be recognized without difficulty. But the intoxication in forms of the Italians has experienced a thorough refining by the national art taste of the French. In a still more advanced sense is this shown on the last great work of Lebrun, the internal decoration of the gallery of the mirrors at Versailles (Fig. 58). T The Barocco ideas are there almost entirely suppressed. Lebrun arranged in the external wall 239.5 ft. long next the garden round-headed windows between Corinthian pilasters, and t the same on the internal wall, but there with the addition of mirrors instead of windows. The main cornice is richly subdivided by consoles set in pairs, the ceiling with panels in which are paintings. The ceiling is inferior in effect to t the wall decoration; it was manifestly done in haste. In artistic value the very famous gallery of mirrors does not equal the Apollo gallery.

The school of Lebrun was represented by the two brothers, Antoine Lepautre (1621-1682) and Jean Lepautre (1617-1682). Antoine had erected some chateaus and mansions as the architect of Duke Philip I of Orleans. To higher fame attained his brother Jean, who published extremely rich designs for decorative sculpture and painting, mostly reproduced by copper engravings, for friezes, furniture, chimneys and the like, in which he at first adhered to the late Roman-Antique art, translated into French art taste, later into Lebrun's.

Of the works of the classicists, we have already mentioned

the principal facade of the Louvre after the design of Claude Perrault (page 89; Fig. 81). The massive facade has a middle projection and two angle projections. The lower story rests on an inclined base; besides the simply enclosed windows with segmental arched lintels and three doorways in the middle projection, it shows no further subdivision and appears as a story entirely subordinated to the principal story, for which it properly forms only a high substructure. But so much more impressively is the main story treated. It presents itself as a colossal colonnade formed by Corinthian columns set in pairs, only interrupted by the middle and side projections. The latter are each likewise subdivided by four pairs of columns. They have in the middle intercolumniations the round-arched doorways or windows, but rectangular windows with pediment caps in those at the sides, above being the impost cornice starting from the round-arched windows of the angle projections and over this medallions with suspended garlands. T The last motive is repeated in the intercolumniations of the recessed wings, yet with the difference, that there are arranged niches with statues instead of windows. A massive main cornice with consoles and a continuous crowning balustrade, that is only interrupted by the low pediment over the middle projection-- without visible roof, dormers and chimneys;,forms the upper termination of the structure. The Louvre facade appears as if derived from one spurt, from a happy inspiration without toil; it passed for a century as the most important work of the later architecture. Indeed it lacks all organic connection with the nucleus of the building. With all its imposing and dignified effect, it is therefore merely a purely decorative, vainglorious show piece, and hence is the true child of its time.

Francois Blondel (page 89) influenced contemporary and later architects more by his activity as director and teacher in the Academy of Architecture and his theoretical works, than by the examples given by him in his architectural works. Yet his few buildings have also found animated approval. Besides smaller works, by him is the gate of S. Denis erected by the city to king Louis in the year 1672. (Fig. 82). It is a

simple wall mass, only subdivided by a slight projection occupying almost the entire breadth, terminated above by a massive horizontal cornice with a high round-arched gateway at the middle, over which are recessed a rectangularly enclosed relief slab and spandrels. At both sides of the gateway opening stand slightly projecting obelisks richly decorated by relief ornament, whose bases are perforated by side doorways. That monument so sparing of architectural expedients, but designed with extreme power, in the midst of the contemporary buildings, claims to be a creation of the new classicism about two generations before the end of the 18 th century. -- Blondel's fame passed far beyond the frontiers of France; he also passes for the original ground-laying creator of the plan of the arsenal in Berlin, which we shall consider in another place. (Page 193).

The pure classicism of Blondel, aside from some less important architects, was continued by his pupil, Pierre Bullet , (died 1716), who even in that time, in which the freer Barocco art style of Lebrun again gave the keynote of Parisian activity in architecture, in some noble works executed with refined taste, that carried into practice the art laws established by his master and instructor.

Jules Hardouin Mansart (page 71) had already developed a rich activity before the time, when he was charged with the royal buildings as the successor of Lebrun, planned at the order of the king the Place des Victoires (begun 1685) and (1699) the Place de Louis le Grand (now Place Vendome), and had undertaken important rebuildings and new structures for a large number of chateaus and mansions. But his most important problems he received from the king in the extension buildings and the internal arrangement of the palace at Versailles. There are referred to Hardouin the royal apartments lying on the main axis of the old chateau, but later changed in part, among which the great hall of Oeil de Boeuf, so named from the oval windows in the cross walls, and the pompous sleeping apartment of Louis XIV are found (Fig. 83), and likewise the rooms of the Dauphin in the southeast wing, as well as those of the Maintenon in the left wing of the court. The

same master also substantially had charge of the Grand Trianon, erected after 1670 in the park of Versailles. This is a one story structure like a gallery with high round-arched windows between columns or pilasters with a charming treatment and a richer internal handling (Fig. 64), intended for the restoration of the royal family after the efforts at assemblages, and on which also Robert de Cotte took part (page 75). His magnificent work in Versailles is the palace chapel, that he erected beside the outer structure (from 1699 to 1710) enclosing the court of honor. In it Hardouin created the frequently imitated model of a princely court and chateau church. The ground plan (Fig. 75) forms an elongated rectangular middle room at whose end lies a semicircular apse. Aroun it extends a choir aisle as a side aisle. The middle aisle extends the entire height to the vaults. The outer aisle is divided in two stories, the upper one being intended for the court and therefore is treated as the principal story. Thereby it became possible for the members of the royal family to attend divine service without being compelled to use the stairs; on the other hand was therebly effected the desired separation of the court society from the people visiting the church. * The subdivision of the lower story was by rectangular piers with round arcades, the upper being by magnificent Corinthian columns. These support the well proportioned and finely designed main cornice with consoles, above which rises a tunnel vault with intersecting side compartments for the upper windows. (Fig. 60). The facade indicates by a belt the internal horizontal division of the interior and emphasizes the principal story by Corinthian pilasters. Above it extend the flying buttresses in a double quadrant from the balustrade to t the upper walls of the middle aisle. These are terminated by a steep roof rising far above the other architectural masses of the chateau. Thereby is the church also characterized as such in the colossal architectural group. (Fig. 59). It is further in artistic respects particularly worthy of consideration, since the pilaster architecture on it is most closely connected with church architecture. The master's principal work is the Dome of the Invalids in Paris, completed in 1706.

Liberal Bruant (died 1697), an architect working in the tendency of Blondel, had built in 1671 the palace of the Invalids, planned in colossal dimensions. The erection of the church intended as the centre of the design fell to Hardouin Mansart. The ground plan is developed from a circular central domed a area with short arms like a Greek cross with small polygonal chapels in the angles.; it forms in its outlines an enclosed square, from which project only the choir structure treated as a subordinate dome, and the projection with the main portal and the two side entrances. In the construction of the d dome Mansart employed a truly Barocco motive, already used in Italy on a small scale, but here at a great scale. He arranged two shell domes, carried the lower one only to a certain height, so that a great circular opening remained. Over this dome he turned a second dome, considerably higher, whose underside was painted with figures and cloud forms in the lightest colors. This painting receives abundant light through t the windows at the base of the outer dome, and which are not visible from the interior. Thus to the paintings, seen from far below, is given the appearance of reality, producing the illusion of a view into the open sky. The two inner shells are covered by another constructed of wood, whose vaulting line is drawn in an extremely elegant curve. (Fig. 85). The Dome of the Invalids, by its well conceived solution of the ground plan, the noble internal effect, the dignified external and internal architecture, belongs to the most beautiful Barocco churches of the world.

* *We have already seen (volume 2, page 36, church at Schwarzrheindorf), that this plan was already represented in the middle ages.*

III. Period of the Early Rococo Style.

Oppenort (page 73) by his early work, the altar canopy in the church of S. Germain-des-Pres in Paris, attracted general attention to himself. He employed on it the ground ideas given by Bernini in his at S. Peter's, but enriched the crowning volutes rising above the cornice by palm leaves supporting a world sphere surrounded by angels, thus creating a motive, that was imitated innumerable times on the altars of the later

time. In the year 1719 was entrusted to him the carrying on of the church of S. Sulpice (page 88), and which work had been suspended since 1675. His activity in relation to this extended chiefly to the internal architecture. The most important problem was received by Oppenort from the regent in the internal decoration of his favorite residence, the palace Royal. The proud apartments in which the regent gave his notorious nocturnal feasts, fell a sacrifice to the revolution of 1871. The views of those rooms published in engravings by Oppenort himself still give us a representation of their former splendor.

An expressly manysided activity was developed by Robert de Cotte (page 75), the successor of Hardouin Mansart as first royal architect (after 1708). The earliest of his great Parisian private buildings is the nobly treated palace (hotel) de Richelieu (1704), now the Russian embassy. This was followed by palace Lonty (about 1717), which was frequently altered later. On the contrary the gallery of the palace (hotel) de la Vrilliere (1713-1719), now the Bank of France), is well preserved. By it is presented to us an excellent example of the state of development of the style of decoration at that time. The walls (Fig. 86), including the main cornice with consoles, are covered with wood and are subdivided by a pilaster order with gilded Corinthian capitals. Between the pilasters broad gilded frames enclose the recessed paintings. The frames have curved lines above and below. The angles of the walls are rounded and formed as niches, in which statues stand on splendid bases. The entire very long room is spanned by a tunnel vault. Transverse arches are adorned by coffers and cause a division into main panels; their imposts are marked by painted reliefs and statues. Besides the paintings in the panels of the walls and ceiling, white and gold are the predominating colors.

Lassurance the Elder (page 75).was an artist chiefly esteemed by the nobility, who built numerous grand mansions,. Leblond (page 75) was likewise active as an executing architect, but is particularly known by his theoretical works.

IV. Beriod of the developed Roccco Style.

Of Robert de cotte's works, there belong to this epoch some apartments of the palace at Versailles, the rooms adjoining the sleeping chamber of Louis XIV; the salon de conseil, a p portion of which is represented by Fig. 66. The similarly t treated sleeping apartment of Louis XV and the two succeeding rooms, as well as the brilliant apartment designated as the cabinet of Louis XVII"which contains the richest and finest treatment in this series of rooms and represents the last splendid work of Cotte. Cotte was a highly esteemed architect and an extraordinarily fertile designer, who not only executed important works in Paris, but also in other localities in France (in Verdun near Metz and in Bordeaux), and was likewise employed by princes outside the French frontier for creating plans of chateaus or in an advisory capacity. (Page 187). In Strasburg the magnificent bishop's palace was by him, erected for the prince bishop Cardinal de Rohan in 1728-1741, a U-shaped structure with three wings and with a very finely d handled cencosure of the court like a gallery with an elegant curve inward. (Fig. 87). The stately building is now utilized for the purposes of the university.

To the style tendency cultivated by Cotte in the last years of his life also belongs that of Francois Boucher and Vanloo in the chateau of Fontainebleau, which by its free decoration, the graceful treatment of the details and the finely conceived coloring is to be counted with the best works of that time.

Meissonier (page 76) aroused very great attention by his f first important work in the domain of architecture, his design for the principal facade of S. Sulpice (1732). In a preference for curves in ground plan and elevation, as well as in the charm of novelty in regard to the decorative treatment, this surpassed even Borrolini's works, but replaced the dry heaviness of Italian architecture of like tendency by a graceful coquetry in the over fineness of the members and by the sportive lightness of the ornamental work. Thereby in this design so entirely breathes the spirit of the French Rococo. It was never executed. We shall take up the building yet later. (Page 235). Likewise as a practical architect, Meisson-

Meissonier produced great works in his famous house Brethous in Paris, in reference to the utilization of the entirely irregular and trapezoidal architectural surfaces, skilful distribution of rooms, comfort, and pleasing as well as splendid interior decoration.

Boffrand (page 78) was less in the service of the royal court than in that of the nobility and of foreign princes. Of his Parisian buildings, the mansion (hotel) de Montmorency f first merits consideration. The buildings are arranged around an oval court. The two story main building lying on the axis has a colossal order of pilasters; the adjacent one story wings are subdivided by Tuscan pilasters and round-arched arcades. The use of this colossal architectural expedient on the facades of a structure, in whose internal architecture a almost every structural idea is suppressed, is characteristic of the change in the conception of art prepared in Boffrand's works. Certainly the strong influence of the Academy of Architecture pressed toward this. Boffrand's chief creation is the internal arrangement of the palace (hotel) de Soubise and that of de Rohan (now National Archives) in Paris, rebuilt a and united by Delamire (died 1745). (Figs. 67, 69, 70, 71). These present the most splendid example of the French Rococo in its most complete maturity, especially in the pompous oval hall of the ground story, though treated with the most refined feeling for form. Among the church buildings of Boffrand, the cathedral in Nancy takes the most important place; it is a domed church over a Latin cross, where the three short arms end in semicircular apses. The architectural treatment is s simple, noble, and in severe drawing, which however permits the recognition of a certain approximation to the contemporary Italian Barocco.

Of the contemporaries of the great masters employed in Paris, Jacques Jules Gabriel (died 1742) still deserves mention, an architect much employed in private architecture at Paris, Nantes and Rheims, as well as a bridge constructor; Charles Etienne Briseux (died 1754), who is known less for his architectural practice, than by his three great works on architecture (appeared in Paris in 1728, 1743 and 1752), in which

he represents the style changes from the regency to the new classicism, and in Lorraine Emanuel Here de Corny (died 1762), the builder of the great Place Stanislaus and of the city plan around it at Nancy. The Place Stanislaus forms a rectangle of 410.1 × 344.5 ft. The entire south side is occupied by the former ducal palace, now the city hall; the other sides are bordered by the palace of the archbishop and by smalles mansions. All entrances to the streets are closed by high w wrought iron gates, which were executed with unequalled mastery by the art smith Jean Lamour (Fig. 88). The art style of the master last named entirely remains within the tendency s shown by Boffrand.

To the supremacy of the Rococo style was assigned a comparatively brief duration. The rude contrast of the theories of the French masters with their architectural works already about the middle of the 18 th century led to a separation, and produced an entire change in the antique ideal, which we shall later follow more closely.

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/23 4. Architecture in the Period of the Barocco and Rococo Styles in the Netherlands.

I. Historical Development and Style.

The Netherlands in the 17 th century entered on an elevated stage of art, such as but few examples of like fertility and on a similarly limited domain are presented in the history of art. This is indeed true of painting in the first line. But architecture also took a large part in it. It affords great interest in the history of art, because it gave a striking n national expression to the character of the people and the p prevailing religious and social opinions on such a small area.

The contrast already observed in the period of the Renaissance between the southern and northern Netherlands (volume 2, page 283) became apparent in greater measure, after the political separation was determined by the peace of 1609, and particularly after the northern Netherlands had obtained their recognition as an independent free state. (1648).

The southern Netherlands, whose frontiers in general agree with those of modern Belgium, remained faithful to Catholicism. the population chiefly consisted of Flemings and Walloons, very gifted artistically and particularly receptive to the influences of the counterreformation. Among them the artistic endeavors last extended and required by the taste for external conditions, found a fertile soil. Under the careful reign of the infanta Isabella (1598-1621), the daughter of P Philip II of Spain, Belgium formed an independent state, which developed a strong and individual life. The infanta had increased the prosperity of the country and devoted especial attention to the culture of the sciences and arts, but also no less to the furtherance of Catholicism and its church activity. The iconoclasm was succeeded, both at the court and among the great of the country, and also by the guilds and t the citizens, by great sacrifices for the satisfaction of the increased and extraordinary requirements for church art works, and for the erection and rich equipment of churches and monasteries. The country entered on that splendid epoch, which received its highest artistic illustration by Peter Paul Rubens, the prince of painters. (1577-1640).

Rubens also took a strong part in the development of architecture. He was eight years (1600-1608) in Italy, from his 23 rd to 31 st years -- at a time that must have definitely 124 influenced his artistic tendencies, and not alone in upper I Italy, but also in Rome and Naples, and even in Spain; thus he was acquainted with the later art of the south as well as with that of antiquity. It is characteristic of his art in design, that he devoted his chief interest to the Genoese palaces, particularly to the buildings of Alessi (volume 2, page 233), and that he drew them and published them in copper engravings. * this work passed through four editions; from t this may be estimated his influence, that it had on the architecture of that time. Rubens held the Genoese mansions to be much more suitable models for those of the Netherlands, t than the Florentine palaces. He was a man of refined culture, whose importance as a political citizen with a statesman's broad outlook stood as high as an artist. In his works is m manifest a classical training in combination with the aspiring imagination of the easily excited and spirited son of the southern Netherlands, abrupt gayety, and as an element of the strongly Germanic portion of the blood of the nation, the enjoyment of a showy treatment of certain architectural parts. He strikingly personifies the individuality of the strength of the Netherlandish people, that indeed willingly adopted I Italian impulses, but gave to them new forms and harmony.

** Palazzi di Genova. Antwerp. 1622. Later editions of 1633 in Antwerp, of 1708 and 1655 in Leipzig.*

Partly compelled by adherence to existing plans, church architecture first continued the ground plan of the mediaeval churches; a three aisled nave with high middle aisle and low side aisles, sometimes with a wide transverse ailse also, a choir with apse and at both sides smaller apses as terminations of the side aisles. The pure central building only occurs as an exception under the influence of foreign impulses. It later appears in a peculiar combination with the nave str-
125 ucture. One peculiarity of the Belgian churches is the position of the tower on the main axis directly behind the choir. (Fig. 90).

For the internal structure, indeed under the influence of Genoese architecture, columns were preferably employed instead of piers. They support arcades, inwwhose spandrels were inserted curved consoles as supports for the transverse arches above the broken cornice. The vaults were also frequently furnished with ribs. The internal architecture entirely omitted the subordination of the masses and members to the great idea of unity, as it is shown in the Jesuit style. The Flemish masters did not feel themselves bound by architectural severity; they were not even accustomed to it. In their creations prevail the picturesque element, freedom in the treatment of the members and the enjoyment of primitive Barocco forms above the restraints of academic correctness. The comfort lent to dwellings and city halls by wooden paneling, they sought to obtain for their churches, when they covered the lower portion of the walls by richly carved paneling with splendidly treated confessionals and choir stalls. The chief show pieces of the Belgian Barocco churches were the pulpits adorned by the most labored ornament in relief. (Fig. 91).

The facades (Figs. 89, 96) are arranged in three divisions corresponding to the division of the interior; they have a h high and middle and low side structures, which above their a attics are joined to the middle building by a curved volute in the form of a horizontal console. For the members with a all the width of the general design, the upward aspiration is characteristic. Heavy groups of columns and pilasters bear similar and frequently returned cornices; animated forms with boldly broken lines and moulded in relief enclose the windows and niches. Greater preference is enjoyed by the boldly treated gable as a cap over doorways and windows and to crown the middle aisle, and but exceptionally the facades of the side aisles. In elegant obelisks of candelabra form entirely reappears the upward movement produced by the vertical axes. The towers appear as free creations of northern art. They rise on a square substructure covered with rustication, in two stories with Doric or Ionic angle pilasters or with angle columns and niches, then passing into an octagonal story, which receives its termination in a dome with a lantern.

The members exhibit the luxuriant power; they were extremely fanciful and were developed with entire freedom. On the whole they appear as if they were produced by a direct mixture of the northern Renaissance with the tumult of forms of t the advanced Barocco style. (Figs. 96, 92). It is striking, that in Belgium already in the first quarter of the 17 th century in the recurved and rolled caps, the jambs curved in and out, and in the entire treatment of the portals appears a bold play of lines and forms, such as the contemporary art of Italy cannot exhibit. The first principal master of the Belgian Barocco style, Jacques Francquart (page 112) had published well considered models for these in his "Libre d'Architecture" issued in 1617. Borromini's and Guarini's designs fall in a later time. In any case the art of the Netherlands did not bring these forms from Italy; rather is to be considered the reverse, that Borromini received influences from Francquart's designs for his endeavors to excel Bernini. On the other hand and based on the political relations is probable a connection of this style of Francquart with that of Juan Gomez de Mora, then the superior architectural official of Spain. (Page 48). The appellation of"Spanish deurkens", which these fantastic forms of doorways have received, directly indicates this. But the Belgian master has gone still further in the boldness and the impassioned treatment of the forms, than the Spaniard. The ornament at first consists of heavy and sappy acanthus scroll work in combination with luxuriand festoons of fruits, cornucopias, the grotesques of the Renaissance and dry figure ornament in relief. About the middle of the 17 th century an influence on Belgian art is obtained by the rolled gristle or ear style of the German decorators, that gave to the scrolls a soft form, as if kneaded from dough, recalling the rounded form of the external ear. (Volume 2, page 277). The further development of the style of ornament follows in adherence to the Barocco ornament of Germany. But the luxuriant and animated modeling applied in swelling relief remains as a Belgian peculiarity.

In secular architecture the most important place is occupied by the city and guild halls. The design of the ground pl-

plan of the former permits the influence of the Barocco style to be recognized in the enlargement of the rooms for vestibules and stairways. The facades and the decorations of the halls intended for assemblages have a treatment like palaces. But the guild halls (Fig. 93) as a rule still retained the t traditional high building with the narrow facade having three or four windows and several stories above each other. The l latter were treated with great richness and finished with the new forms in the most varied ways. (Page 116; Fig. 100). Still more strongly did the houses adhere to the old traditions. Even after 1625 such originated with stepped gables, high facades, and even with pointed arches. The influence of the n new art is there chiefly expressed in the more convenient arrangement of the ground plan, the broad stairways and in the erection of court structures for the subordinate rooms. A real palace style was never developed, such as Rubens desired to produce.

In Holland, the present kingdom of the Netherlands, the Germanic race, holding fast to the peculiarities of their race, ably calculating in its enterprises but bold and led by mercantile considerations, not only won its complete political i
118 independence but also its freedom in belief after hot contests. In it Protestantism found a secure and well protected h home. After the recognition of the free state of the Netherlands as a sovereign power by the peace of Westphalia (1648), the Dutch also exhibited in their victorious wars directed to the conquest of colonies, an unusual power of expansion, by which they extended their commerce over nearly all parts of the earth. From distant lands its bold mariners brought home immense riches, which under the blessings of peace permitted a comfortable development of living in the most extensive classes of the people. The entire national and cultured life received a grand and worldly tendency. To this was added, t that a philosophical spirit, that had in the two recently erected universities the strongest starting points and supports, not only dominated the nobler men of the nation, but also the citizen class. Men busied themselves thoroughly with the study of the ancients. The influence of the Italian Bar-

Barocco art, that had struck such deep roots in Belgium, found no ground there. The people were prejudiced against the specific Catholic character of the Belgian style; their art in design was different from that of the Belgians. The abrupt contrast in painting between the churchly and devotional picture of the southern Netherlands (Rubens) and the realism of Holland (Rembrandt) was also expressed in the architecture. Dutch architecture remained faithful to its tendency developed in the Renaissance.

The style treatment is most severely calculated and consequential. Men first required the rooms and their distribution to correspond to the purpose of the building, and certainly in this went to a utilization of the rooms carried to the extreme, also particularly in the dimensioning of the subordinate rooms. Further was required a good and secure construction. (The city hall of Amsterdam is founded on 13,659 piles driven into the ground). In regard to the architectural treatment, men strove for a quiet appearance, carried out in the classical sense. It was entirely conceived in the sense of the theorists, when the art of the ancients was regarded as the ideal model of pure treatment of forms. Architectural i itself passed for a science, which firmly restricted artistic creation by law and rule. The works of the severe Palladio were celebrated as the highest manifestation of the art spirit; the Dutch had adopted his instruction more fully, than a any other people on this side of the Alps, excepting the English.

In the architecture (Figs. 94, 101, 103) the classic orders came to unlimited supremacy. Between the strikingly close s set columns could not be developed the strongly emphasized w window architecture of the Belgians; the architraves of the narrow and tall windows are rather very modest, and the moulded jambs and lintels are often entirely omitted. The scrolled gables of the preceding perior were also omitted, as well as their decorative richness. All detalis, the cornices, the bases of columns and the capitals received a severe classical design. As ornamental forms are sparingly found as filling gable panels almost entirely, loose festoons of leaves and f

fruits, and the Roman scroll frieze with reliefs of figure r representations or emblems employed in parapets.

Besides this classicism the Rococo did not occur. Into the capital Amsterdam it appears in general to have found no entrance, and in other places like Rotterdam and Groningen it o only led to certain decorative accessories, that were directly and obtrusively applied by foreign modelers to the facades otherwise left entirely unchanged. (Fig. 95).

In the design of the ground plans of this structure, new a and characteristic types for the epoch did not originate. Protestant church architecture did not develop a special activity, since the need for the Houses of God was satisfied in great part by the already existing buildings. The few churches meriting consideration have a central design in the form of the Greek cross, of the polygon or the circle. The plan occurring in one case * of a hall with apsidal extensions on the longitudinal axis and of two axes at right angles thereto, i indeed brought an interesting and artistically important solution of the problem of church architecture, but found no further result.

* *New Church" at the Hague, built in 1649-1655.*

Secular architecture produced in the city halls some very important creations with in part masterly treated distributions of the ground plan in accordance with the special requirements for the city administration. Chateau architecture received no proper development in the republican state. On the buildings originating about the end of the 1/ th and in the first half of the 18 th century, the ground plan allows the recognition of French influences, and also the internal decoration. The exterior almost always exhibits the form treatment of the public secular buildings. They mostly reject architectural ornamentation, even if also on certain of the better structures a great pilaster order and also occasionally galleries occur. By the mixture of bricks and cut stone, the latter being employed for the plinth, angles, bases, capitals and cornices, while the shafts of the pilasters and even the window architecture are constructed of bricks or moulded bricks, these buildings having a peculiar charm.

About the end of the 17 th century Dutch architecture was fertilized by the influence of the Huguenot immigrants from France in multitudes in consequence of the revocation of the edict of Nantes (page 123). Among them was found the important Daniel Marot (page 90), who was appointed his chief architect by the stadtholder, William III of Orange. The Huguenots represented the graceful classicism developed in France, that received its perfection by Francois Mansart. Their art clarified that of the Netherlanders in the sense of a more graceful pose of the entire architecture, as well as a refinement of the details. But likewise their own uninfluenced creations acquired there a Dutch coloring. From the intermingling of the two art conceptions proceeded a style tendency, that attained to high and instructive importance far beyond the frontiers of Holland. It expressed itself with particular prominence in city and garden architecture. The Dutch by the nature of their country were early led to make the soil arable by drainage, thus to the construction of canals, to s suitably plan the cities, and also to garden architecture in connection therewith. Their sense directed toward the practical taught them to arrange the cities chiefly according to engineering views:- they divided the available land by broad and straight streets into rectangular blocks. The houses themselves are made wide and mostly with but two stories. The corners of the street intersections were preferably emphasized by three story buildings. The ground plans have great anterooms on the street facades with galleries or balconies on the courts. The architecture of the houses retains a plain simplicity. Only the portal is frequently accented by pilasters or columns. The windows have simple architraves and the angles ashlar quoins. Instead of bay windows appear balconies. The covering was by mansard roofs. On the whole the buildings have a quiet and classic pose. The public buildings, such as city halls and mercantile houses, exhibit the same g ground tendencies, but are more richly treated. There are a also found decorative and figure reliefs. For the ornaments is characteristic the preference for their division into panels, such as the later classicism shows. The chateau build-

buildings of the Huguenots are very much extended in width by reason of an intimate connection with the garden design and the prespective effect of the structures. From a middle building with one or three wings extend long one story structures, that terminate in higher portions. The architecture remains within the limits of a tasteless, academic uniformity, which only rises to a richer effect on the middle portion of the principal building, yet without manifesting a higher flight of fancy.

In garden designs the Dutch developed a peculiar style, that essentially differs from that of Lenotre (page 83). By t the grand arrangement of walks, cascades and the like, this //always placed the entire garden area in direct connection with the architecture of the chateau. But the Dutch certainly preferred a subdivision into geometrical plots by straight lines, which indeed also received some variety by modest water works, grottos, arbors, and shady walks, and also in part by statues and small structures, but by the rejection of the great groups of trees in favor of beds of flowers and of a wide view over the area of the garden, produced the impression of a certain emptiness. This design corresponded well to the D Dutch, who were accustomed to a broad view of the landscape, and found pleasure in strict geometrical accuracy, but they are very much inferior in effect to the French Barocco gardens, expressing a unified artistic idea. Yet in spite of this the Dutch garden style also often found entrance outside the country, particularly in north Germany.

II. Most Important Monuments.

BELGIUM. -- The principal master of the early Belgian Barocco style, Jacques Francquart (1577-1651), who was originally a painter and had traveled in Italy, commenced his epoch-making activity in Brussels with the Jesuit church (1606-1616). This was -- it was torn down in 1712 -- a three aisled nave without transverse aisle, but with semicircular apses, round-arched arcades on Tuscan columns, and a facade subdivided by pilasters, whose treatment exhibits the transition from the Renaissance to the Barocco. Soon afterward originated the A Augustinian church at Brussels (1640-1642), which unfortunately

had to give place in very recent times to the main portal bu-
ilding. It had the same ground plan as the preceding * and a
notable, extremely cleanly arranged and impressive facade. T
The lower story in accordance with the internal subdivision
was three aisled with broad pilasters and columns set before
them, the middle building two story and flanked by doubled c
columns, the lower being a Tuscan colonnade with a broken tr-
iangular pediment, the upper being crowned by a similar segm-
ental gable. In the doorways and windows were enclosed with-
in curved and returned lines with bold mouldings, covered by
broken gables. Only the uppermost portion between the shield
of arms added above the great cartouche between the projecti-
ons of the segmental gable, had a closed angular cap.

** Several Barocco churches of Belgium appear to have been
erected on mediaeval foundations.*

To the school of Rubens is due the origin of the grand chu-
rch of S. Charles, formerly the Jesuit church at Antwerp (
(1614-1621). The design is evidently referred to Rubens him-
self, but the execution was conducted by the Jesuits Francois
Aguillon and Pierre Huijssens. The ground plan is that of an
Italian columnar basilica with three aisles and without trans-
verse aisle. Each of the aisles terminates with a semicircu-
113 lar apse. Behind that of the choir stands the tower, which
was destroyed by fire in 1718, but was again rebuilt accordi-
ng to the old design. The interior has a simple and clear,
solemnly cheerful treatment with an excellent effect of the
light, which charmed several painters to reproduce it by pain-
tings. The facade (Fig. 89) is broadly arranged in three pa-
rts with two story elevation, above its middle portion projec-
ting a third story crowned by a pediment. In the facade are
included two flanking recesses extending through two stories,
each of which is crowned by an octagonal domed structure like
a loggia. The subdivision is effected by pilasters, instead
of which columns occur at both sides of the middle axis and
at the angles. It is grandly conceived, powerful in expedie-
nts, of extravagant richness,and in the Barocco heaviness is
freer and more advanced than the contemporary works of Italy.
A work of this time and of importance in the history of art

is further the rebuilding of the abbey church of S. Peter at Ghent, begun in 1629, erected by Jan van Xanten (Giovanni Vasanzio). The master there placed in a three aisled Romanesque basilica a central building above the Greek cross with a main dome and four subordinate domes over the angles between the arms of the cross. The building is entirely treated in the Italian sense. Its facade has many characteristics of V Vignola's design for the church Gesu in Rome. In comparison with the other Belgian Barocco churches it exhibits a somewhat dry and tasteless treatment. Yet more closely adheres to Italian art Wenceslav Coeberger (1560-about 1630). He was a
114 painter, had been trained in Italy, then entered the service of the archduke Albert and showed himself in his architectural activity as an opponent of the free art conceptions of Rubens and as zealous for the antique tendency. His principal work is the great church of Notre Dame of Montaign (about 1610), a central structure, whose ground form strikingly coincides with that of S. Maria della Salute in Venice. (Page 37). A slender tower stands beside the choir. In the architectural treatment the horizontal subdivision appears in a heaviness foreign to the northern nature.

The second great master of the later Belgian Barocco was Lucas Faid'herbe (1617-1697), the favorite pupil of Rubens. As his earliest work we have to consider the church of S. M Michael, formerly the Jesuit church at Louvain; * (1650-1660); this is a three aisled cross plan kebt within the proportions of the late Rhenish Romanesque cathedrals with thre middle a and six side square bays, transverse aisle and three abses. Ionic columns, that appear too closely set for a Barocco building, support the arcades. The cornice extended above them is strongly returned above the consoles, that rise from the spaces between the cartouches. A tunnel vault and a low dome over the crossing forms the ceiling of this building. The i internal architecture is executed in gypsum,stucco and exhibits the most luxuriant forms. The imposing triply divided f facade is one story before the side aisles, two story or rather two and a half stories on the lofty middle building, if one counts in the crowning addition with the colossal tablet

of arms. At the outer anglesaare coupled pilasters, and atb
115 both sides are grouped similar columns, indeed Ionic in the lower and Corinthian in the upper story, hermes being used in the added gable. The powerful mouldings, the numerous returns, the rude Barocco doorway and window enclosures give the building a strange rhythmic heaviness, that receives a particular artistic clarification by the animated and heavy relief, and ornamental work enhanced to the most luxuriant splendor in the tablet of arms of the added gable. The quite strongly upward tendency of the facade, which is only moderately softened by the rusticated bands, which intersect at each third of the height of the column, and not last these bands themselves characterize the building as an expressed work of the northern Barocco style. The pulpit already executed in 1699 (F (Fig. 91) now stands in S. Gudule at Brussels. Then in a still higher degree characteristic for the master must pass the Beguin church at Brussels (1657-1676), a rebuilding of a three aisled cross basilica with a hexagonal tower adjoining the middle apse. The interior has a charmink effect through the noble and strong treatment, excellently adapted to the old building. (Fig. 97). The facade is well known as a show piece of Belgian architecture. The strongly accented triple division allows the internal treatment to be clearly recognized. (Fig. 98). The middle building has two stories and a crowning gable on the added story. It is subdivided in the lower story by Ionic clustered piers, in the upper by Corinthian h half columns, and in the added story by hermes. Over the portal the architecture of a niche interrupts the main cornice, so that its terminal function here appears omitted, corresponding to the undivided middle room. The adjoining facades of the side aisles have coupled pilasters at the angles and independent gables above the attics instead of the elsewhere employed great volutes. Thus also here the axes are completely extended upward; the entire subordination of the facades of the side aisles to the middle building is omitted. The architectural treatment of the details appears as an interesting result of a genuine Barocco architectural tendency, that understood how to combine the system of the Italian Barocco sty-

style with the northern structural principles and the powerful form treatment of the Netherlandish Renaissance. One will not err, if at least the design for the facade be ascribed to Faid'herbe.

** The assumption, that this church is to be attributed to the Jesuit father Wilhelm Hesius is uncertain, according to my understanding. Such a grandly conceived, unified and powerful work, executed as if at one spurt, could only have had a great master as its originator.*

The master not only understood hou to transform the shapes of earlier buildings in the modern sense; he also approached more nearly to the problem of the central building, and he p perfected solutions meriting consideration in the highest degree for the combination of the central building with the nave, and indeed even then, if he saw himself restricted in the free development of his ideas by regard to existing structures. In the church of Notre Dame of Hanswyck at Mechlin (1663-1678), he inserted in the three aisled nave design a circular domed building, about which the side aisles are carried concentrically. (Fig. 98). Likewise in his smaller church buildings and the partly never executed designs, the master shows himself in the design and in the architectural and ornamental treatment -- he was also very much esteemed as a sculptor -- as a very important representative of his time.

An example of dwelling houses is afforded by Rubens' own h house. (Fig. 99). The great painter, as a well to do and highly respected citizen of his native city, was indeed in a position to give to his own house a richer artistic treatment. But in the design he departed but little from the native traditions and did not elevate the treatment of the facade to architectural importance. On the other hand the paintings g give it an innate charm. The gateway terminating the court and forming the entrance to the garden, exhibits the architecture of a triumphal arch with three entrances, the middle o one rectangular with oblique corners, those at the side terminating in round arches. Over these lies a low story treated with niches having busts, and with a low triangular roof over the middle passage and a crowning balustrade attic with stat-

statues on the two inner and vases on the two outer axes of the piers. Half columns project from the piers of the lower story, which are intersected by bold rusticated bands. The side entrances have smaller columns arranged after the Palladian motive. The treatment exhibits a primitive and almost rude strength, Splendid guild houses with most luxuriant ornamentation conceived in reference to the different industries are found at Brussels (Fig. 93), Antwerp and louvain, etc. The palace-like corporation house (Fig. 100) erected at the order of the mechanics by A. de Bruyn in 1698 has already abandoned the traditions of the native gabled house. Its entire design and architectural treatment gives the impression of a new architectural spirit inclined to Dutch classicism.

HOLLAND. -- Among the leading Dutch masters is to be named Jacob von Campen (died 1657) in the first place. He had devoted himself to painting in Rubens' studio, was then in Italy and after his return to Holland, turned to architecture. On one of his early works, the house of Balthasar Kayman in Amsterdam, distinguished by grand and clear proportions, but otherwise very simple, and which exhibits an Ionic and a Corinthian order with a high attic, with windows in the intermediate rooms with stone crosses, simple architraves and caps, the influence of the school of Palladio makes itself apparent. Particularly all richness of ornamental decoration is avoided. His principal work, the city hall at Amsterdam (after 1648), is the most important work of Dutch architecture of the 17 th century, in which its peculiarities are most markedly expressed. On it Campen shows himself not only in the architecture but also in the solutions of the ground plan and the construction as a great master of his profession. Within a length of 262.5 ft. and a width of 206.7 ft. he developed a ground plan, in which the different rooms were distributed in a masterly way with a thorough understanding of the diversified requirements of the administration. The principal apartment is the great rectangular citizens' hall, arranged on the middle axis and extending through the two principal stories. It is entered through the vestibule and the relatively modestly treated main structure in three branches -- two lower ones to the lan-

118 landing and a middle ascending upper branch. At each side of this hall lies a court with wide galleries extending around it and with other stairs in three branches at the side opposite the citizens' hall. Toward the market place projects from the main facade a wide middle building composed of s seven axes; at the angles rise a narrow projections with three axes each. The recessed parts have five axes. The superstructure (Fig. 94) shows on a low ground story, treated as a plinth, which contains the entrances in the seven round-arched doorways of the middle projection (a main portal does not exist), two principal stories, over each of which is inserted a low intermediate story. Closely set Composite and Corinthian pilasters subdivide the facade, each comprising a principal and a low intermediate story. The rectangular windows in the main, and square windows in the intermediate stories have no architraves. Only simple festoons (of leaves) in the pedestals of the intermediate stories form a simple a and dignified decoration. The middle building is crowned by a pediment with rich relief of figures in the tympanumand statues as acroterias. With similar severity are treated the interiors. The great citizens' hall (Fig. 101) repeats the external architecture exactly in the lower story, in the upper with a variation. The ceiling is a tunnel vault with a d division into rectangular panels and paintings on thin backgrounds. The doorways of the hall in front are characterized by crowning relief ornament. The details are not superior to the best Italian and French in correctness of form and refinement. Quite particularly beautiful are the sculptured works of Quelljinus, whose caryatids in the vestibule and figure r reliefs of the tympanum of the facade must pass for works of
119 the first rank in composition and execution. (Fig. 102). The ornament is free from all Barocco tendency; the favorite naturalistic festoons of fruits employed rather bear the character of the Renaissance than of the Barocco. On the entire a architectural work is impressed with a fully intelligible clarity the craracter of a statehouse for the independent government of a great democratic community. Indeed to its present use as a royal palace so much the less is given an external expression.

After Campen, Pieter Post (1608-1669) was the most employed Dutch master of the 17 th century. His earliest works were in Brazil, where he went in 1636 with pince Maurice. The church and other buildings of Olinda and the fortifications of the city of Pernambuco were by him. The palace Maurice (Mauauritzhuis) built by him at the Hague charms one by its noble and indeed classical facade (Fig. 103), adhering to the Italian late Renaissance. More strongly expressed is the Dutch style in his most important creation, the city hall at Maestricht (1652). The plan is very worthy of consideration and contains on the middle axis a great square hall, that extends through both stories and the attic and is covered by an octagonal dome like a tower. Adjoining the facade are the stairway and the vestibule, at the opposite side being a second octagonal hall, which likewise occupies two stories. Around the two halls extends a corridor on each of three outer sides. (Thus not on the division wall). The official rooms are arranged about the main halls lengthwise of the building. Before the middle projection is placed a flight of steps with balcony above a portico; it is elevated by a roof story above the adjacent wing and crowned by a gable. Otherwise vacant and returned pilaster orders subdivide the building, between these being placed the tall windows without architraves.

120 The third Dutch architect of that period, Philip Vingboons (1608-1675), owes his importance in the history of art chiefly to his literary activity. In his writings he required besides a treatment of the interior accurately restricted to the purposes of the buildings and substantial construction, a purely scientific conception of architecture with a close adherence to the antique. His palace Tripp (Trippenhuis) in Amsterdam (1662) has some large halls and strikingly small s subordinate rooms. The facade is subdivided by a colossal o order of eight very closely set fluted Corinthian pilasters. These stand on the ground story, treated as a plinth, and comprise the two principal stories and the upper mezzanine story. The four middle ones form a slight projection, over which rises a pediment with arms and trophies in the tympanum. The windows lack separate jambs. The pediments and caps project

but little. The principal cornice is animated by a severe p pattern-like designed scholl frieze with very meagre foliage. Otherwise festoons of leaves form a relatively rich ornament. By these the building occupies an exceptional place in Vingboons' art. His other works, even if they generally strive for a richer effect, mostly exhibit a very tasteless and stiff subdivision with unassuming pilasters.

Protestant church architecture is represented by two works meriting consideration. The Lutheran church in Amsterdam was erected in 1666-1668 by Adrian Dorsman, who adopted the motive of the ground plan of the antique theatre. (Fig. 104). It is the only older church in Amsterdam with galleries built in. On the three polygonal piers and eight Ionic columns set in pairs next the entrance side rest the massive internal main cornice, above this being a low drum with coffered dome and lantern. On the exterior the building appears in front as a dome constructed on a regular octagon with two narrow recesses terminating with the principal cornice, as facades of an annular aisle, which extends around five sides of the octagon. The acoustics of the church interior are excellent. The exterior makes a dignified impression, and not that of a theatre. The Ooster church in Amsterdam was built in 1669-1671 by an unknown master, and it has the ground plan of a Greek cross with two intersecting tunnel vaults and low square rooms in the angles, so that the area covered forms a square with a projecting entrance hall. Galleries are wanting. The exterior bears a churchly character by the facades of the arms of the cross, carried high above the main cornice, the high hip roof and the lantern over the intersection.

Of the more important architectural monuments erected in t the 18 th century, there is yet to be mentioned the chateau Heerenloo built by Marot (page 111), whose plan was manifestly influenced by Versailles. The structures are grouped around a court of honor narrowing toward the rear by offsets. On the axis lies the vestibule and behind this is the stairway in three branches, that has its considerable richer model in the ambassadors' stairway at Versailles. The decoration was simple and severely treated, mostly executed in wood, to whi-

to which was given an appearance like marble by painting.

The later Dutch-Huguenot art may rise to greater importance on account of its extension, than that of the second half of the 17 th century. But considered in itself, this earlier p period is that one most interesting in the history of art. If one views the stylistic general impression or its works a and observes the cold and stern severity of the orders, the tasteless and stiff forms of the other architectural members, and particularly the ornamental work, the quite pattern-like designed acanthus frieze and festoons, one might imagine himself tc have before him creations of about one and a quarter centuries later. This style is the direct predecessor of the new classicism from the end of the 18 th and the beginning of the 19 th centuries, particularly of that style generally designated as "Empire".

/22 5. Architecture of Barocco and Rococo Style in Germany, Austria and Switzerland.

I. General Basis.

The German Renaissance in the buildings of some prominent masters, who had become acquainted with the Barocco style in Italy, had developed strong tendencies to an independent German Barocco. According to the treatment of the forms, these works on the whole still belong to the Renaissance. Yet they differ from this by the great monumental tendency characterizing the Barocco conception, and which was undeniably aimed at. The thirty years' war removed the ground for a further development. Activity in architecture flourished well under the favor of special conditions in the provinces not affected by it or less severely involved, until about the year 1630. But in the second half of the war occurred generally those m miserable conditions, which destroyed the extraordinary wealth of the country, introduced depopulation, poverty, a habitual and intellectual decadence of the entire people, and destroyed the German civilization so high before.

By these conditions was architecture most strongly affected. Among the turmoils of the unrestrained soldiers, drawn from nearly every country in Europe, alternations of war and the uncertainties of all conditions, great architectural ideas c could not develop, and if they did appear, were not executed without the greatest difficulties. In almost all lands visited or threatened by the war, architectural activity entirely ceased, indeed for some decades. Consequently the training of the masters, and their workmen and also the traditions were lost, thus the basal requirements for a continuous progress in architecture. The creative arts lay fallow. When after the termination of the war they again commenced to recover, the basis for the development of architecture and intellectual and artistic opinions were different from before. The citizen class were weakened to the extreme by the burdens of the war, and was in no condition to give orders for great buildings. These could only come from the princes, the great and the often richly endowed ecclesiastical organizations. The former in the age of the absolute power of the princes

and of the privileges of the nobility first had the necessity for placing impressively before the eyes of the people their own power and eminence by grand and representative residences. 123 The ecclesiastical communities pursued similar aims, so far as they moved in the circle of ideas of Catholicism and the counterreformation, if these were also chiefly directed to t the external personification of the faith and the most possibly impressive tneatment of the Houses of God and of the divine service. In both cases men desired to affect the masses by new architectural impressions inspiring reverence, and thus the Barocco ideas coming from Italy were received with particular interest. It was unavoidable under existing conditions, that the planning, supervision and execution of the larger architectural designs, and particularly those for Chateaus, churches and monasteries, could only be entrusted to Italians or tc masters trained in Italy. These came in great numbers across the Alps, either at the call of secular or ecclesiastical builders or on their own account, seeking employment. Their richest field of work, they naturally found in the provinces remaining entirely or chiefly Catholic. They transplanted into these their style developed in Italy.

The people and the ornament loving host of little masters, who pleased themselves in the construction of splendid gateways, rich bay windows, fanciful gables and pretty fountains, were astonished by the foreign art, but without understanding it. Its grand conceptions directed toward a monumental effect of the masses found no ground in the petty nature of the people with its intellectual narrowness. This art was from the beginning onward purely courtly and hierarchical, in the last respect being principally Catholic.

Protestantism held itself entirely aloof from it. For north and middle Germany dominated by it, the impulses came from the Netherlands. Holland was then a flourishing and rich state by the concentration of European commerce in its cities, which under the free government of William of Orange attained high fame. Its schools were highly esteemed centres of learned culture; its engineers enjoyed the fame of excellent canal, fortification and city architects.

Holland had willingly afforded admission and protection to Protestantism. It offered to the Huguenots fleeing from France in consequence of the severe measures of Louis XIV a secure refuge and home, as soon as they passed the frontier of Holland. But in the broad stream of French emigrants Germany shared to a very important extent, partly through Holland. * In the states where princes and people favored Protestantism, thus principally in north Germany, the immigrants were favorably received. They were mostly active men, zealous for the faith, firmly adhering to their convictions and from the well to do class of French citizens, who turned their backs on the despotism of Louis XIV and took up their abode in a foreign land. They brought to this their culture and their art.

* *After the revocation of the edict of Nantes (1685), many thousand families adhering to the Huguenot faith left the soil of France and settled in Holland, Germany and England.*

The Huguenots had previously devoted particular attention to architecture. They cherished that classicism developed in France, which was perfected by Francois Mansart (page 65). This tendency in art corresponded in its entire meaning to P Protestantism. The contrast to the showy style of architecture fostered by the Jesuits and Catholicism led still to a f further clarification in the sense of a severe conception, as free as possible from ornamental accessories. Then in Germany in the architecture commencing after the thirty years' war, there originated two great principal opposing tendencies; the Barocco of the South based on the Jesuit style and Italianism, and the classicism of the North adhering to the Netherlandish-French art. As in south Germany the Italians, so in north G Germany the Netherlanders were preferred as designing and executing masters for the greater architectural undertakings.

But the architecture of Germany did not remain exclusively and permanently dependent on foreign architects. Besides the art endeavors brought into the country by them, the art cultivated by native masters also commenced an existence at first diffident and modest, but then so much the more strongly prominent. The German people again maintained itself and gave e expressive evidence of its innate powers, in that after such

severe misfortunes as it had received by the unhappy war, it rapidly rose again to prosperity. The first motions of this art proceeded quite early after the ending of the war from r regions, that had been spared by it. Their appearance stands in close connection with the national improvement, which the German states gradually won under the lead of Austria. Austria had not only continued as a strong power protecting Catholicism; it had defeated the greatly feared Turks before Vienna, and even been victorious over Louis XIV; it was then governed by its monarch Leopold I (1658-1705) in a just and very dignified way in consideration of the inefficiency of the princes at that time. After the Swedes were expelled by the great electors, even in middle and northern Germany the political conditions again became better. German consciousness arose. National inspired writers took the field against foreigners. Native masters soon successfully competed with foreign architects, and they increasingly succeeded in supplanting them, owing to their splendid endowments in art chiefly tending to decoration, and their better acquaintance with native conditions and mode of building. The interiors of Austria and Bohemia, particularly the royal palaces at Vienna and Prague, again became centres of German art, which celebrated great triumphs in chateau, church and monastery architecture. There was established worthily beside this in southwest Germany, in Bavaria, Franconia and also partly in the Rhine provinces an extensive art under the lead of native masters. Likewise in Saxony native architects acquired supremacy at that time, and similarly in Prussia, there indeed with changing f fortunes.

The German Barocco art could only maintain its supremacy in church and monastery buildings during the entire epoch. In chateau architecture the inclination of the princes to surround themselves with the magnificence of the court of Louis X XIV became fatal to it. Not merely the crowned heads of the great states but also the rulers of the numerous little principalities desired to have their "Versailles". Even before t the first quarter of the 18 th century, at the courts of Munich, Stuttgart, Carlsruhe, and later in the Palatinate and in

north Germany, particularly in Berlin, for most great undert-
akings were preferred French architects or those trained in
France. Austria adhered very much longer to its Barocco, but
in the end could not avoid the French influence. Thus the G
German Barocco style, which especially in Bavaria had so flo-
urished, was suppressed by art forms streaming in from France,
before it had been entrely developed and lived out its life.
Indeed this French art -- the Rococo -- bore within itself t
the germ of its own destruction, when it brought strongly em-
phasized classistic ideas from the predominating school of B
Blondel (page 69), who prepared the soil for the new classi-
cism and aided in its victory.

II. Historical Development and Style.

For the historical development of German architecture in t
the period of the Barocco and Rococo style, with the diversi-
ty of the impelling forces in time and place, general limits
can only be given in very great outlines and with the reserv-
ation of many exceptions. We shall have to take into consid-
eration the two great principal tendencies concerned, the It-
alian Barocco in the south and in the north the Dutch-French
classicism, and so far as necessary the separate currents wi-
thin these.

In south Germany the Barocco style commenced under the lead
of the Jesuits about 1620 in Austria, Bohemia and Bavaria, a
and also in the Rhine provinces in certain monuments. (Jesu-
it churches). The war brought their activity in architecture
to a close, particularly in its second half. The later and
ever scarcer becoming monuments of the Jesuits extend down to
about 1770, and they exhibit almost throughout a firm adhere-
nce to the teachings of Vignola in a dry and tasteless, rath-
er scholastic conception.

About from 1650 onward Italian masters, independent of the
Jesuits, began their epoch-making activity. Already since t
the penetration of the Renaissance, whole troops of well skil-
126 led workmen wandered from Italy into Germany, especially num-
erous after the close of the thirty years' war. They found
at first a rich opportunity for work in the adjacent Austrian
provinces. The religious contests were already decided there

indeed in favor of Catholicism. Under the protection of the absolute rulers of the country, this made a mighty advance. Then commenced an extremely rich ecclesiastical life, that again matured in willing sacrifices for the architectural needs of the churches and monasteries, that were not inferior to those of the middle ages. Catholicism acquired new power, i increasing strength and also an elevated external consequence. In contrast to Protestantism, inclined to internal divisions in questions of faith and to the formation of sects, it formed in itself a compact unity, that was carefully watched by the Jesuits, and if necessary, was protected by sharp spiritual weapons. By their wide views, their political sense and the force of conviction, with which they represented their o opinions of the world, they won extended circles of the German nobility, of the learned world, statesmen, and particularly also artists as spiritual adherents to their ranks. In an unexpected way flourished ecclesiastical activity in architecture and art again, and which had been so much repressed in the period of the Renaissance. It also offered attractive c commissions to Italian artists of fame.

The chief points of support of the Italians were Graz, Salsburg and Munich. From thence they spread over the remainder of Austria, into Bohemia, Bavaria, Swabia, Baden, Franconia and also in part into middle Germany, Saxony and Silesia. T They created there an astonishing number of churches and monasteries meriting consideration and frequently great, as well as of chateaus. Their activity fills the entire second half of the 17 th century and even extends in the southwest and m middle Germany into the first quarter of the 18 th century, and beyond this in certain cases. Their climax was attained in Austria and in Bavaria indeed in the time from about 1670 to 1700.

German masters, who impressed on their works the stamp of a national conception of the Barocco style already appeared about 1655 in the Fichtel mountains (Waldsassen), also two decades later in Switzerland (Einsiedeln) and in southwest Germany with creations important in the history of art. Their most fruitful field of work they found in Austria, Bohemia,

Bavaria, Saxony and Franconia. Their climax in general falls
in the first three decades of the 18 th century, but maintai-
ned itself in the interior of Austria, particularly in the i
imperial city of Vienna, extremely rich in animated activity
in art, and in Franconia until about the middle of the centu-
127 ry. Later this Barocco art lost ever more, until about 1760
-- aside from the somewhat longer continuing Barocco archite-
cture -- it almost completely yielded to the French art pene-
trating.from the west.

In north Germany the Dutch classicism commenced its course of development directly after the termination of the thirty years' war. Already about 1650 Dutch architects were called to Berlin by the Great Elector with the commission to carry cut the fortification of the city, a new plan of the streets, and to enlarge or establish palace buildings. Their number increased and was strengthened,particularly by the immigrant Huguenots, whose extension considerably increased, and thereby their influence on Protestant church architecture and secular architecture. On foreign soil the Huguenots adhered with great tenacity to their architectural style. This may be followed on a series of monuments until the middle of the 18 th century.

Native masters of fame arose in Protestantism, aside from some artistically les important predecessors appearing after the end of the war, first in the last quarter of the 17 th century, at a time when pietism permeated more deeply the Protestant spiritual life. A determining influence was exerted by some theorists, who appeared for a strict adherence t to the course of the Dutch-French classicism based on the instructions of Vitruvius. This predominating philosophical=1 literary conception of art corresponded very particularly to Protestantism, not only as a contrast to that of Catholicism, that on its part gave wide playroom to the good pleasure in the Barocco wealth of forms directly influencing the popular mind, but also in regard to its entire meaning, its tasteless and coldly judging intelligence. It is in nowise more national than the south German Barocco; for it makes far less of t the enjoyment peculiar to the German nation in the accenting

of certain parts, in rich alternation of forms, charming treatment of details and luxuriant decoration, than does the Catholic Barocco of the South. *

** Therefore it is not surprising, if in the territory of t the margrave of Ansbach-Brandenburg, Italian masters obtained preference for building chateaus.*

Until toward the end of the 1· th century in the Protestant portions of middle and north Germany, particularly in Bremen, Bamberg, Cassell, Hesse-Nassau and the Palatinate, the style of the architecture was principally Dutch-Classistic. But in the 18 th century these architectural domains also became the scene of freer endeavors in art. Classicism indeed retained supremacy; but some powerful artistic natures were inclined toward the Barocco abundance of forms, and animated it by a treatment and sculpture borrowed from the Barocco. A decided importance was secured by the ever more strongly advancing F French world of form. Already about the middle of the 17 th century had the French conception of art found entrance at t the court of Berlin (Francois Blondel, page 69, during the fifties was in the diplomatic service at the French embassy in Berlin and also busied himself there in art); after 1720 it stands in the foreground of architectural creation. As in Bavaria, so also in the north men thenceforth preferred Fence masters or natives trained in France. Indeed in the north the Barocco fire experienced a stronger quenching by classicism than in the south.

About the middle of the 18 th century the contest of the masters fostering classicism against the Barocco and the Rococo became more pointed and stubborn. About 1760 its victory was decided along the entire line, in the north as in the south, even if the decorative style of the Rococo was able to predominate still in interiors and in art industries for a d decade (until about 1770). But in the interior of Austria t the Barocco keynote still appeared in the buildings for a long time, and in Hungary it maintained itself until in the 19 th century, though indeed considerably weakened.

The development of the style proceeds from the architectural style introduced by the foreign architects, in the south

from the Italian and in the north from the Dutch architecture. Yet these masters could not preserve permanently in these lands foreign to them their art forms in style in their original purity. Separated from their people, they adopted new materials on the new soil, so that their creations acquired in increasing measure a changed character, corresponding to Germany. The process was completed the more rapidly, the less they allowed themselves to be guided by purely academic considerations, and the the more they permitted free scope to free art in design. Since the directly preceding Italian and Dutch architectura has already been described, we shall only have to consider in the following those changes and innovations, which may be taken as characteristic of German art.

CATHOLIC CHURCH ARCHITECTURE is directly connected with the models afforded by the Jesuit churches (Fig. 105 b; volume 2, Fig. 267). The Jeusits themselves had frequently altered the scheme for the ground plans of churches given by the church Gesu in Rome, and they had in part developed it further.* If the area of the site or the cost must be economized, the transepts were omitted. The choir then formed a direct continuation of the middle aisle. Also the chapels of the nave were sometimes limited in depth. The construction of two stately facade towers with a careful adjustment of their proportions to the dome became the rule after the beginning of the 17 th century. Between them opened a vestibule, over which was found the organ gallery in the interior. for the subdivision of the internal piers (Fig. 107) were preferably chosen Corinthian pilasters. Galleries over the chapels were unwillingly omitted. On the main cornice extending around were directly set the tunnel vaults; above the crossing by t the mediation of pendentives was placed the drum of the dome. The architectural treatment approached that of the Roman high Renaissance. But the members otherwise allowed a pure academic treatment to appear. Stucco ornaments were employed in rich measure. In them the acanthus scroll predominated in a heavy and flat form. But it was connected with branches and twigs of plants, which were modeled as naturally as casts after nature. White prevails as the color (indeed with reference to the Roman marble) in combination with gold.

** It should be particularly stated here, that where the Jesuits found a powerful national art, they made thorough concessions to it (volume 2, page 280). But in Germany, where architectural traditions were destroyed by the 30 years' war, and where they must place special emphasis on affecting the masses by new and grand buildings, and also express artistically the unity and solidarity of Catholicism, they returned again to the original form of the Roman Barocco church of the order, the church Gesu in Rome.*

By the masters independent of the Jesuits the ground plans of churches scarcely experienced any apparent change. They were frequently restricted by existing conditions, so that a certain diversity appeared. Likewise the structure adhered to the models developed in their country and given by the Jesuits. The principal charm of their buildings lies in the extreme masterly and sketchy treatment of the stucco and in the abundance of forms, which attract the eye by novel and surprising thoughts, and motives in small figures and in ornament. (Fig. 109). In this as in the entire treatment of the details an influence of the German spirit shows itself. The architectural members exhibit a force, surpassing what was p previously thought permissible in Italy. (Compare Figs. 7 and 107). The greater freedom in the forms afforded room for a luxuriant enjoyment in the treatment. Likewise on the facades the Italian masters indulged in curvatures, such as only occur in Italy as exceptional cases. (Fig. 108). Thus the works created by Italians on this side of the Alps received
131 a different stamp. The influences received again reacted on the architecture of their southern native land. *

** The architecture of towers in Rome was developed by masters from upper Italy; in Milan and in other cities of upper Italy stand a large number of palaces from the 18 th century, which in regard to their architecture fall entirely outside the bounds of the other contemporary art of Italy, and stand apparently in direct connection with preceding works of the Barocco style of Vienna and of Munich.*

In the German provinces the Italians had undertaken surprising things in churches, particularly as stucco-workers and

painters. The confidence in them by their employers was so great, as the most striking manifestation of the wonderful art of the Roman Catholic spirit, and also so unscrupulous, -- that after the example given by Borromini -- they furnished important mediaeval churches with Barocco decorations, particularly those in Romanesque. (Fig. 109). Thereby they very greatly injured their work in the eyes of discreet and critically qualified contemporaries, and especially in the judgement of the later world. For the architectural forms introduced by them were designed for wide, unified and well lighted internal creations; in the narrow and dark Romanesque buildings s subdivided by massive detached piers, they seemed foreign, h heavy and oppressive, even if they also presented many beauties in details. Aside from some great masters, the Italians were rather technical amateurs and decorators, than creators of interiors freely from the architectural programme.

The German Barocco masters were independently opposed to the scheme developed in the Jesuit churches. But they indeed also started from that, though soon showing a preference for adhering to the form of the Latin cross, to the accenting of the longitudinal axis, and likewise that of the transverse a aisle by extending this by apres, or by development into an oval domed interior. Finally they progressed to the resolution of the central space and also frequently of the transepts into oval or circular domed areas, which by their magnitude, sequence and treatment produce the highest enhancement of the impression of the interior. (Figs. 110, 146, 150, 159, 167, 168). Where men decided for central designs, they likewise sought for them new and peculiar solutions. (Figs. 132, 150).

In the requirements for height and spaciousness of churches the German masters even surpassed the Italians. In order to connect the internal effect of the chapels more than before with that of the principal middle interior, it was further l limited in depth and was made high, which is particularly characteristic for the German Barocco, not seldom to the imposts of the main vault. The principal cornice, which in the church Gesu extends just above the arches, is then broken around the walls of the chapels (Fürstenfeld, Weingarten), and sometimes it rose above the round arches and followed them,

so that an uncommonly animated wall architecture originated. (Monastery church at Einsiedeln). Like wise with the tunnel vault usual in Italy men were not contented; they rather preferred instead the higher appearing cross vault, indeed also if it were subdivided by transverse arches into separate bays.

The German masters devoted particular attention to the treatment of the forms. Corresponding to their requirements, t they showed themselves particularly accessible to architectural and decorative novelties. These aroused their interest so much the more, the more striking they became. But the innovations in style did not come exclusively from Italy, but also from Belgium. Their introducer was chiefly the theorist J. von Sandrart (1606-1688), a native of Frankfort, who had been engaged in art with great success in Antwerp and in Rome, and having returned to his native land, he made the elevation of German art in itself the problem of his file. He served this both with the influence of his highly respected position as well as by his writings. Against foreigners he took the field in speech and writings, both against those coming from Italy as well as those coming from Holland. His book on architecture was very much esteemed later, and besides a refined
133 explanation of the orders, it contains chiefly doorway and w window enclosures, that exhibit tne peculiar riotous abundance of forms peculiar to the Belgian art of that time. (Page 106). The German masters readily adopted these, but also entirely passed over in the general architecture to more animated forms, than the Italian. Far more commonly than those, they give to the facades surfaces curved in and out (Fig. 111). The clustered columns and pilasters were employed with greater freedom and were purely picturesque with cornices broken in the extreme. A very fanciful treatment was received by the caps and the additions over the portals and windows, the crownings, and also especially the spires of the towers. (Fig. 1 112). In the interior the German architects proceeded with astonishing boldness in the selection of their means of expression. To enhance the perspective effect of the interior as much as possible (after 1700), the the pilasters projecting from the piers were commonly set diagonally. The trans-

transverse arches rise from them in a curve to the apex of t the vault and from this pass down to the corresponding pilaster of the opposite wall. (Fig. 1o9). The ceiling thereby a received an animated Barocco subdivision. This oblique position of the pilasters is already found in the designs of Guarini (page 87). It was indeed a most advayced and venturesome novelty, by which the Turin masters, considered according to the Italian conception, had already passed the limits of the permissible. The German masters, who had previously had a particular enjoyment of technically interesting art ideas, took it up and developed it further, indeed in that the obliquely set pilaster was not employed in a purely decorative sense like the Italian, but as a new structural idea for heightening the effect of the interior and the richness of the perspective views. Likewise the condensed (sitting) columns and pilasters, that occur in one of Pozzo's designs (page 35), are not seldom found in Germany (Fig. 113). Thus just the
137 boldest and most daring Italian architects found successors in a kindred spirit in the German masters.

New things were created by the German architects in ornamental art. In pilasters, panels of transverse arches, on piers and in the wall panels, they replaced the heavy and swelled Italian ornamental work by a band-like surface ornament, a v view of which is given by Fig. 114. The gracefully intersecting bands extending in elegant curves with rich alternation with straight lines are organically connected with acanthus bells, leaves, rosettes and hanging leavesin an extremely charming way. Also where the stucco decorations still follow the Italian art style, the band-work plays about the cornices and the panels in elegant curves. (Fig. 115). The figures r remaining between the different bands on the background were harmonized in delicate color tones. (Figs. 143, 152, 153). T The development of this surface ornament from the northern Renaissance is not difficult to recognize. It differs from the ornament of Berian (page 72) with similar lines, in that the latter entirely forms grotesques (volume 2, page 192), while this concerns only a light and flowing play of lines. This German flat ornament occurs earliest on Dientzenhofer's

buildings at Prague and Bayreuth, and is indeed to be regarded as his creation. It was substantially derived from stucco methods. On works of internal church architectwre executed in wood (altars, pulpits, organ cases and the like), the acanthus in bold scrolls and animated by figure ornament also long continued in use during the 18 th century. (Fig. 116).

With the advance of the Rococo style from France, the Rococo ornament took its place. The new forms introduced by the French masters were adopted by the German artists with animated approval. With them these were not developed as in France, from a severe preceding classical school. They were rather directly taken over and indeed in the freest conception,
135 only in use there later. The German decorators did not remain at this stage; they went further. Boffrand, the great master of the entirely mature French Rococo, had still firmly a adhered to symmetry. The German artists also abandoned this and made dissymetry a principle, indeed not only within the separate wall panels as Meissonier did, but in the entire use. (Compare Figs. 69, 127, 164). The German Rococo ornament became broader, unrestrained and passionate, bolder and more n naturalistic in the modeling. The panels lost themselves in terminations freely curved against each other. The acanthus leaf disappeared entirely in favor of the overgrown shell-work. An astonishing gift in design and artist's caprices was expressed in this. If finally often rejected every architectural basis required by the structural members or the panel work. (Fig. 118). This further development was based on the nature of the style. It was the German masters, who brought the Rococo to its climax. In regard to the directness of art creation, the enjoyment in treatment and the wealth of motives, they not only far excelled the French, but also the Italians. Therein they were not exclusively decorators; they rather had in their ranks not a few masters, who took into their service architecture, sculpture and painting in equal measure, and w whose works were combined in full harmony into a unified whole.

MONASTERIES, ecclesiastical foundations and colleges as culture buildings of Catholicism took an active part in the changes of style, at first in the colleges of the Jesuits. For

their plans and treatment the Order had prescribed restricti-
ons. College buildings must not compete with chateaus, but
correspond to the modesty of the Order in regard to worldly
possessions, but otherwise were to be constructed suitably f
for their purpose, free from objection hygienically and subs-
tantially. In general the Jesuits remained faithful to these
basal principles. In most of the churches of their Order er-
ected in Germany is not found that decorative overloading,
those heavy and thoughtless swelled forms, of which one usual-
ly thinks in the conception of the "Jeusit"style. Besides
them, the Benedictines, Cistercians, Premonstrants and the
canons further appeared with creations of importance in the
history of architecture. Aside from the church and the part-
136 icularly accented main portal, in their monasteries some rooms
received a richer treatment as a rule, which were to serve f
for assemblages, common use, or the reception of quests of h
high rank. Thus particularly the festal hall existing in ne-
arly every important monastery, generally treated with impor-
tant architectural means (Fig. 119), the library, the refect-
ory, as well as the imperial chamber and that of the local r
ruler. The living cells of the monks remained almost entire-
ly without any artistic ornamentation. For the formal treat-
ment of the monastery buildings the circle of forms developed
in Catholic church architecture was determinative.

PROTESTANT CHURCH ARCHITECTURE appeared after the termination of the thirty years' war still uncertain and groping for the solution of the architectural problems resulting from the peculiarity of its divine service. It was generally simply content with the churches abandoned to it by Catholicism.The altars were removed, the pulpit was placed at the middle of a side wall of the middle aisle, the altar being set before or beside it, and the seats were then faced toward these centres of divine service. Thus in this simple manner, and chiefly to emphasize the contrast with Catholicism, the longitudinal plan was transformed into the transverse plan. Further as regular parts of the Protestant church were introduced galleries along the sides opposite the pulpit, often in two stories above each other. Buildings erected for the purpose were

entirely simple, spacious hall churches covered by low vaults, mostly constructed of wood, that took into account artistic treatment but slightly.

Protestant church architecture reached a higher stage, when the theorist Leonhard Christian Sturm (born about 1669 in Altdorf near Nuremberg; died in 1729 at Blankenberg) secured a determining influence on the evolution of the northern architecture and furnished designs for Protestant churches. Sturm was a pupil of the Leyden teacher of architecture, Nicholas Goldmann (born at Breslau, died 1665), who followed the views
137 of Villalpanda (volume 2, page 239) and published manuals on architecture, which in general were concerned with the theory of proportions of the columnar orders. From 1700 Sturm occupied a chair of mathematics at the university in Frankfurt-a-O, where architecture, as in the Roman colleges, was taught as a branch of mathematics. He represented the Vitruvian classicism as conceived by the French and the Dutch, held the orders to be the primary conception of all architectural beauty, but also required for his own time its own means of expression,and thus was an adherent of Perrault in spirit and opinions, whose Louvre facade represented to him the highest a attainment of art. Sturm's endeavors were for producing a n national art on the basis of the antique principles of beauty. He was a strong opponent of the Barocco and therefore, without so intending, prepared the ground for the entr.nce of French classicism. His importance in the history of art is based on the designs for Protestant church architecture published by him in the year 1712. (Fig. 120). He first fixed the requirements for the Protestant House of God:-- the creation of a room in which every one could see and hear the preacher well, thus a corresponding form of the ground plan, avoidance of columns, favorable arrangement of the pulpit, the altar, and of the organ for the church hymns, the construction of galleries over each other at the walls opposite the pulpit, with good lighting and simplicity in treatment. In regard to the shape of the ground plan, he opposed the cross form, since the internal space was injured by the reentrant angles , and the construction was made more expensive without necessity; he also advised against the use of all circular forms on

account of the difficult and more costly design of the arches and the roofs. On the contrary he held the square or rectangular hall church, the polygonal or even the triangular form as most suitable, and also recommended the arrangement shown by Schickhardt for the church in Freudenstadt, of two aisles at right angles to each other. (Volume 2, page 304). One sees from this how little attention Sturm paid to the structure and the effect of the whole as church architecture. He was a zealous Protestant and clearly expressed his faith in his designs; he was also an influential teacher and path-breaker for Protestant church architecture, but aided this only by indeed very good ideas, though given from the dry standpoint of utility. The higher inspiration of a space-creating imagination was wanting to him. Yet Protestant church architecture thenceforth entered on an evolution conscious of its purpose.

Several types of ground plan were developed for it (Fig. 121):-- the hall church, and indeed as a longitudinal plan (A) with the greatest dimension in the main axis determined by the position of the altar, or as the transverse plan (B), in which the longitudinal direction of the hall lies at right angles to the principal axis. The former enjoyed particular favor, especially for small and medium city churches, since it greatly favored the organic connection of a tower with the nave and also thereby an impressive external treatment of the House of God. The extension of the interior by a choir or a choir apse was rejected as a rule; but men favored cutting off the angle obliquely at an end, where the altar found a place. The altar was sometimes moved nearer the middle and the galleries extended around, whereby the preacher had a less favorable position.

The transverse plan (B) Sturm had recommended as the best. It was employed in the Netherlands with especial frequency, and indeed from thence found entrance into Prussia, where it commonly occurred in the 18 th century. It is there designated frequently as a "hall church" in a restricted sense, in contrast to the "longitudinal church" also usual in Catholicism. But on account of the position of the altar on the transverse axis of the room, it became less favorable for acous-

acoustics, the more the length of the hall exceeded its depth. For this reason its selection as the ground scheme of church buildings later greatly diminished.

If in a transverse plan the longitudinal wall opposite the altar and the pulpit -- the latter in this case stood directly behind the altar -- were opened and a wing were added there for the exterior and the form of the interior was made more favorable to the acoustics, this produced the T-shaped ground plan (C). This also resulted if from a cross-shaped church were omitted the arm regarded as a choir. Although this
139 form is regarded as entirely suitable for Protestant church architecture, it was however seldom built.

The pure cross form (D), in spite of the fact that Sturm d decalred it unsuitable for Protestant church architecture, received the preference in numerous cases. For this was chiefly determinative the circumstance, that this made possible an impressive external appearance. But(in the 18 th century) m men rejected the Latin in favor of the Greek cross with relatively short arms of equal or nearly equal length. In consequence of the differences in construction and the cost, the crossing but seldom and only on small churches was covered by a crossing tower or by a drum and dome.

The polygonal plan (E) presented the very precious advantage of gathering a numerous congregation of hearers in the most favorable manner around the pulpit. But especially in large buildings, it requires such a high expenditure in construction for the erection of a corresponding internal ceiling and external roof construction, and for the then necessary i introduction of the required overhead lighting, that it was but exceptionally executed -- frequently under injurious restrictions.

For circular churches (F), either with circular or oval ground plans, this was the case in a still higher degree. Therefore like the polygonal buildings, they occur comparatively seldom and mostly with but small dimensions.

Aside from few exceptions, the structure has not created i individual types. The organism well developed in Catholic church architecture comprising ground plan, treatment of walls and form of the ceiling is generally not to be found there.

The requirement of spaciousness and the avoidance of internal free supports but seldom permitted the construction of large vaults and domes. The omission of the choir caused the loss of the most favorite portion of the interior of the church. The arrangement of the entire treatment of the interior and the architecture with reference to it no longer had any reason. The importance of the high altars of the Catholic church could not be replaced by those of the altar and the pulpit in the Protestant church. By the usual position of the pulpit at the middle of the longitudinal wall was nearly excluded t the enhancement of the architectural effect of its surroundings. To this was added, that the insertion of galleries, p particularly if these were arrangedin several stories, very greatly reduced the grand effect of the interior. Men sought to avoid these disadvantages as much as possible, retained f from one case to another entire freedom in the choice of architectural expedients, and avoided as far as possible all reminiscences of Catholic church architecture, already to remove any ground for comparison. On the whole the opinion prevailed, that for the Protestant church architecture and the simplicity of its divine service only a complete modesty in architectural and decorative expedients was suitable. In fact t with the exception of the often very richly treated chateau churches and a number of monumentally erected principal churches, Protestant church architecture invariably remained faithful to the ground principle of great simplicity.

In the interior a severe treatment of the walls by pilasters and arches is comparatively rare. In interiors with several aisles, columns on account of their smaller dimensions a are more commonly employed than piers. The galleries either rest on separate small supports, or they are attached to the internal columns or piers supporting the ceiling, sometimes intersecting them. * On them rests directly the entablature (architrave, frieze and cornice), or these rise from these arches of mostly depressed form, above which a crowning cornice extends as the upper termination of the wall. (Fig. 156). The ceilings are chiefly constructed of wood, indeed as horizontal ceilings, often with a large vault at the top of the

wall or in the form of a depressed tunnel, mirror, cross or domical vaults. These were plastered and sometimes had imitative cross arches and ribs. If domes were constructed in the interiors of central designs, these only appear externally by exception; men were then frequently satisfied with a roof turret, which introduced the necessary overhead light in the dome as a lantern.

* *In order to be able to give the supports of the galleries as small a diameter as possible, iron columns were selected in Hamburg (Great S. Michael's church etc.), already about t the middle of the 18 th century. We have there one of the e earliest examples of the introduction of iron into architecture.*

For longitudinal churches with one or two facade towers, t the exterior in general differs but little from the Catholic churches. The central buildings also agree with those of the Catholics, particularly if they are erected on the Greek cross plan, but as a rule the transverse structures only when t they received a correspondingly treated tower. In other cases they frequently resemble secular buildings, assembly halls and hall buildings; this impression was not much changed when a portico with four or more columns was added as a temple facade. Certain circular structures recall the Roman Pantheon, either intentionally or by the plan. (Fig. 122). The interior arranged in the circular or oval form in churches terminating in a rounded form, by concentric rows of seats rising behind each other and by the galleries placed over each other in several stories, has many traits agreeing with the parquet and the galleries of theatres. (Figs. 156, 157).

The development in form of the Protestant churches chiefly follows the art tendency prevailing in the different architectural provinces or preferred by the rulers. Thus in the east predominated as a model the Byzantine style derived from Catholic church architecture, and indeed in the chateau chapels in a comparatively rich form and in the community churches in a simplified treatment, but in the north on the contrary in the classicism fostered there, chiefly developed in secular architecture.

CHATEAU ARCHITECTURE required a longer time for it to attain a development in plan, architecture and internal decoration corresponding to the ground principles of the Barocco style. Not as in Catholic church architecture, for which on account of the complete uniformity of the religious worship on both sides of the Alps, the Italian style of architecture corresponded to the requirements without extensive changes, a model developed in a foreign country could not be adopted for it. Of the Italian palace architecture the arcaded court, w which still generally occurred in the southern countries in the chateaus of the later Renaissance, lost its importance, since the social and home life far more than formerly was spent in the salons and the more private living rooms. Also t the rigid adherence of the Italian palace to the ground plan of an enclosed rectangle, to the unbroken architectural lines, animated by no projection, to the consistent facade system e executed and repeated without change, that only expressed one idea in unified forms, could not satisfy the German art in d design. The Italian masters entrusted with the erection of chateaus in Germany had to consider the changed needs, custims and requirements of their employers. Their works differed in plan and architecture from the Barocco palaces of Italy. The architectural masses were subdivided by projections and recessions, certain parts and especially the projections were particularly emphasized, and the portals and windows had an alternating treatment; the whole was more animated, also richer and more impressive in the architecture. Likewise the Huguenot-Dutch masters active in middle and north Germany, who from the first stood infinitely nearer Germany than the Italians, changed in many respects the architectural style d developed in their native land or in Holland. On the contrary the native masters preferred to adhere to the preceding R Renaissance, when they adopted foreign influences in increasing measure, and to work according to their own designs.

For the ground plans soon became determinative the French court customs prevailing at the courts of the princes as well as with the great nobility. Already about the end of the 17 th century became generally usual the sequence of anteroom,

audience room, throne room and bedchamber in a suite. In the 18 th century the chateau ground plan attained more fixed standards. In the year 1711 the German master Paul Decker (born 1677 at Nuremberg, died 1713 at Bayreuth) published an ideal design for a chateau, * by which he strongly influenced the German architecture of that time. The plan consists of a middle building with two wings projecting at right angles and enclosing a court of honor. On the principal axis of the middle building lies next the court the great state stairway, behind this being the garden hall in the lower story, in the upper being the main hall. Starting from this a division wall extends lengthwise through both stories of the building. At both sides of it lie rooms of medium size, that terminate in the state bedchamber with alcove and bed. The wings have at the centre a great stairway occupying the entire depth, w with a grotto hall in the ground story in the angle pavilions, over it being the dining hall with the adjoining playing room and the library, and in the second story being likewise a dining and a playing or conversation hall, that is also designated as a "promenade hall". The cellar contains the housekeeping rooms, an upper story having the rooms for the servants. On the whole the requirements of a rich princely court are w well considered; but in regard to convenience of arrangement, particularly of the appropriate connection of the rooms with each other and the suitable addition of subordinate rooms for the servants, this design is not of the best. Leonhard Christopher Sturm also published somewhat later an ideal design f for a chateau, in which the main form of Decker's plan was retained, in which he showed himself decidedly superior to Decker as a master in the arrangement of the ground plan for the sequence and utilization of the rooms -- he separated the festal rooms from the proper living rooms -- in their connection and the care of the stairways and the subordinate rooms. Sturm also placed the halls in a long series between the principal apartment lying on the axis and the palace chapel. The main stairway he kept in grand proportions; he enclosed it by an open colonnade, in order to make the construction effective. The perfection of the solution of the ground plan was a

attained in the second quarter of the 18 th century, after t the French model for it had reached determining importance.

* *"Der Fürstliche Baumeister oder Architectura civilis". Augsburg. 1711-1713.*

So far as the buildings were erected by native masters, the architectural treatment and decoration were connected with t the preceding cabinet-makers' architecture. The bent columns and pilasters used by them, the gristle ornament, the very distorted grotesques introduced to superfluity, the twisted columns, broken pediments and the decorative additions of all parts were often transferred in the proportions established for cabinet work, thus producing at larger size a dry and swelled effect. The eye for the entirety was lost. Therefore monumentality was lacking in the works of the less important masters. Where a powerful effect was devised, the means were mostly wanting; coarsening the forms, misunderstood Barocco innovations, which bear all the marks of a transitional stage. About the end of the century the forms became clearer. About that time the better chateau buildings mostly had the following architecture; ashlars in the lower story, over this being a flat pilaster order appearing as if attached, or even pilaster orders in all three stories, with columns sometimes projecting from the principal parts, usually double windows, uncertain treatment of the profiles, rich ornament of garlands of leaves and festoons of fruits in a dry treatment in relief. (Figs. 123, 124). The interior indicates the Barocco taste by the heaping and enlargement of the members, by the inclination to free transformations, the prominence of the relief figure decoration and the bold scrolled ear-like cartouches, and particularly by the luxuriant ornamental decoration by strongly projecting and fleshy modeled acanthus scrolls, festoons of flowers and fruits, fluttering bands, draperies and the like. After the change of the century was generally expressed with increasing sharpness the separation into a south German, approximating the Italian, and a north German Barocco style chiefly influenced by the Huguenot-Dutch art.

In south Germany was adopted the wealth of forms of the Italian Barocco style, and it was employed according to native

designs for facades and internal architecture. Instead of s subdivision by wall strips, common particularly in Austria
176 after the thirty years' war, pilasters and columns appeared with wall piers diminished downward like hermes. The middle building was strongly emphasized as well as the portal.(Figs. 138, 142). The windows received original enclosures with interrupted jambs, in whose sections a wide ogee moulding became characteristic, and caps with animated curvatures. Also the straight profile of the cornice was preferably made heavy;
177 in order to increase the effect of the shadows, deep undercutting by hollows was given to the cornice, especially between the principal members. (Fig. 125). The capitals were very f freely developed and were enriched by festoons of fruits and hangings like drapery. (Fig. 138). Above the principal cornice extends a balustrade formed of balusters or perforated slabs as a support for vases, trophies and statues. (Fig. 182). The crowning cornice of the middle building rises into a pediment at first triangular, afterwards curved in animated outlines, on whose tympanum the crown with the princely arms represents the climax of artistic splendor. (Fig. 172). Almost still richer than the court facades was treated the garden facade. There were especially considered a grand perspective effect, that was generally attained by the long line of the building, only slightly broken. (Fig. 126). This architecture maintained itself entirely in the south German chateaus, even after the French art had obtained a determining influence. On the whole the native masters showed themselves as opposed to large undecorated surfaces. In handling the architectural masses, the clarity of the grouping and the impressive arrangement and the treatment of the details of the architectural and decorative expenditure, the more important among them are not inferior to the foreigners.

The interior decoration consists in luxuriant show. Great architectural expedients are found in the vestibules, the principal stairways and in the festal halls; otherwise the subdivision into panels was common, whose enclosures afforded o opportunity for the luxuriant development of ornamental work. From about 1700 onward this matured into the surface decoration composed of interlaced bands, scrolls, rosettes, suspended

leaf clusters and acanthus terminations, that we have described on page 134. For these Decker gave in his "Fürstlichen Baumeister" an extravagant wealth of models. In its full maturity (Figs. 143, 152, 153) this ornament is of an indeed ensnaring grace and beauty; in regard to the imagination in design and the harmonious coloring, it can stand beside the best ever created in ornamental forms. After 1725 the influence of the style of the regency becomes perceptible (page 73), and about a decade later comes the Rococo, that often appears directly and abruptly. Then the interiors receive that showy decoration, that was first developed in the French chateaus. (Page 76). From the anteroom to the state hall the magnificence is increased. In the small private rooms the panel work predominates as the subdivision of the walls. (Fig. 163). In the ornamental work mingle exotic forms, particularly Chinese motives. There are found inlaid floors of foreign woods, charming stucco work, costly gobelins, and in the state sleeping chamber are lavish gold embroideries, aside from the expensive curtains, the swelling couches, shining chandeliers and the rarest nicknacks of every kind. In the great festal halls a powerfully treated order is combined with the most luxuriant panel ornamentation, that finally in impassioned movement swells wave-like over the attic architecture in the transition to the ceiling paintings. (Fig. 127). After 1750 the more important masters return to a quieter treatment of forms, to a refined Rocooco or even to a clarified Barocco. Thenceforth, even if at first but indistinctly, the advance of classistic ideas becomes perceptible.

In north Germany the chateau buildings of the Huguenots (page 111) provaded the models. The sequence required in France by the court customs was also not rejected there. The architecture of the facades shows there, where the Huguenot individuality appears, in the ground story ashlars and round arches, sometimes also in the succeeding story, but otherwise and in the upper story are rectangular or segmental windows, that are often crowned by alternately horizontal and segmental caps. The windows have a slender form and finely moulded enclosures, which are modest like the other details and are correctly designed in the classical sense. Ornamental decoration

was very sparingly employed; only over the windows are found garladns and trophies or figure reliefs in the tympanum after the Dutch style. Majestic quiet and dignified simplicity pa-ss for the highest requirement. (Fig. 128).

The native masters of north and middle Germany were in gre-at part dependent on foreign influences, and indeed they sto-od between the Huguenot-Dutch and the Palliadian-Italian art. Their works in part are filled with the Barocco spirit. The facades in general exhibit an easy scholastic correctness. But in the internal decoration the German masters retained a certain independence; they were less strong there, than on t the exterior. Yet they did not introduce the strong contrast between the simple external and the showy internal architect-ure as the French intentionally arranged it. They did not take for this internal art the curly Rococo of the school of Meissonier, but sought to refine the native Barocco. To the-ir preference for nature, for plants and flower scrolls, they gave great scope, particularly in ornamental work. In the second quarter of the 18 th century the tendency proceeding from the French Academy of Architecture exercised a determin-ing influence. The reaction from this expressed itself about the middle of the century in a stronger inclination toward E English Palladianism. Finally a style was developed, that was almost entirely divested of the national individwality.

THE ARCHITECTURE OF THE CITIZEN CLASS in south and middle Germany already about the end of the 17 th century was entir-ely dominated by the forms of the Barocco style, and likewise in north Germany this also conquered a wide domain. The peo-ple found particular pleasure in the luxuriant ornamental wo-rk; they resigned themselves to an unrestrained enjoyment of the decoration, even if it also for a long time adhered to the ground lines of the earlier buildings. (Fig. 129). The designs of the citizen's buildings gradually adopted many Ba-rocco tendencies. The city halls acquired impressive vestib-ules, broad stairways and one or more splendidly stuccoed ha-lls decorated by paintings. They were often treated exactly like palaces. In the houses these rooms likewise extend to the entrance hall, the stairway and the better chambers. The

ceilings indeed receive stucco work, that is chiefly limited to curved paneled divisions with single rosettes. So much the more attention was devoted to the joinery. How deeply the Barocco and the Rococo penetrated among the people may be seen, in that even in the most distant mountain villages, in the so-called "good room" of the better peasants' houses dating from that time, occur pronounced Rococo doors and wardrobes; not rarely even the window shutters were covered by Rococo carvings.

In the citizens' architecture of north Germany the Barocco spirit appears chiefly in the regard to the convenience of t the ground plan and the abundant dimensions of the vestibules, stairways and more important rooms or halls. For city halls and exchanges, Sturm published well considered designs, which follow the ground ideas of the city halls at Amsterdam and at Augsburg. The architecture indeed keeps within the limits of the art tendency there common, chiefly dominated by Huguenot-Dutch influences, but allows it to be recognized, that on the public buildings, as also on the dwellings of the rich merchants and the well to do citizens, the ornamental work from t the Barocco and the Rococo was not wittingly rejected. On the half timber structures prevailing in certain regions, although the structural framework firmly adhered for another generation to the old traditions of the mechanics, the enjoyment of Barocco decorative work frequently appearing in obtrusive abundance. (Fig. 129). Otherwise the citizens' houses of the north are limited to the emphasizing of the portals a and the facade of the principal story by bolder enclosures of the windows and a more carefully developed principal cornice.

Among the numerous minor arts, which in the Barocco and Rococo epochs were taken into the service of architecture, the smith's art further merits particular mention. The richness in art caprices in the designing of state gateways, grilles and panels, the refined feeling for style with which the art smiths transferred the forms of architectural decoration to wrought iron, and the perfected technical skill with which they treated the hard material, as if it were as plastic as wax (Fig. 130), ensures to their works a permanent place of honor in the history of the minor arts.

/57/ III. Most Important **Monuments.**

The period of the Barocco and Rococo styles produced in German lands an astonishing abundance of monuments, so that we must restrict ourselves in the enumeration, and even in the individual descriptions, be satisfied with the most necessary references.

IN AUSTRIA, among the many Italian masters, who wandered f from the southern slope of the Alps into the north and west, chiefly the Carlone from Milan, Galli Bibiena from Bologna (page 35) and Luragho from Fermo near Ancona appeared with important creations. A direct precursor was the already mentioned Santino Solari, the builder of the cathedral of Salzburg (completed 1634), one of the grandest internal creations of the art of the 17 th century on German soil. (Volume 2, p page 308). Among the Carlone is to be mentioned in the first place **Carl Antonio (died 1708 at Passau).** He was engaged in the rebuilding of the monastery at Kremsmünster in upper Austria. At his entrance into the service the conventual buildings (1605-1652) had already been erected by less important masters. On the contrary he clothed in Barocco forms the three aisled church, terminating in three apses and dating from the year 1298. (**Fig. 109**). More unified and on a plan with grand lines was built the monastery of Garsten near Steyr (1677-1693) by Giovanni Battista Carlone, an architectural plan composed of four wings grouped around a wide court. The facades have a rusticated ground story, over this being an Ionic pilaster order extending through three stories. The interior was entirely changed by rebuilding it into a penitentiary. Only the great and unusually deep principal stairway with three landings, which leads from the middle projection on the main axis to the former great hall, is still well preserved. The church (1687) is based on the scheme of the Jesuit churches with galleries. In the entirely naturalistic wreaths of leaves and flowers, which enclose the windows and the paintings and also appear in the cross arches of the vaults and the panels of the pilasters, is expressed the influence of the northern conception of art; even instead of the consoles beneath the geison of the crowning cornice is inserted an entirely naturalistic wreath of leaves. At the still

larger foundation of S. Florian near Linze the before mentioned Carl Antonio Carlone (1686-1708) was engaged as architect. He erected (1686-1689) the church on the foundation of an old early Gothic structure, of which he retained the crypt, and whose stucco work was by his brother Bartolommeo. The church is of large dimensions, has a wide middle aisle, that is accompanied on each side by four small chapels of small depth, a crossing and organ choirs instead of transepts, with a polygonal choir. The total length is 260.2 ft. On projecting Composite half columns 59.7 ft. high rests a returned, richly t treated cornice with a wreath of leaves under the geison as at Garsten. Between and attached to the piers are Ionic columns supporting the arches of the chapels; above them are found balconies and galleries, that likewise open into the middle aisle in round arches. Rich relief and painted ornamentation heightens the grand general impression.

The end of the 17 th and the first half of the 18 th century bring to the Austrian capital, the imperial city of Vienna under the rule of Leopold I, Joseph I and Charles VI a flourishing epoch in art. The Barocco style developed there combines in the happiest manner the monumental symmetry of the Italian Barocco architecture with graceful lightness and charm of French, and with the enjoyment in decoration of German
153 art. The foundation master is Johann Bernhard Eischer von Erlach the Elder (born 1650 at Prague, died 1723 at Vienna), a highly gifted artist, who had trained himself in Italy by the buildings of Bernini and of Borromini. In his "Entwurf einer historischer Architektur" (sketch for a historical architecture), that appeared in 1725, may be recognized a certain independence toward the traditional laws of art and an inclination to foreign influences, which give his art style a peculiar charm. His early work is the Collegiate church at Salzburg (1696-1707), a plan in the form of a Greek cross, whose arms lying on the main axis are extended, with four oval corner rooms and the rounding of the choir ending,and the entrance end in segmental arcs. The architectural superstructure (Fig. 131) exhibits influences from upper Italy; in the treatment of the facade, that consists of a concave project-

projecting middle building subdivided by a colossal order and two slender towers, but the master retains the German individuality in the freedom of the profiling in curves and deep undercuttings. On the church of S. Peter erected at Vienna by him in 1702-1713 the central plan is more strongly emphasized. Its plan is substantially repeated in Fischer's principal work in churches, S. Carlo Borromeo in Vienna, built 1716-1737. (Fig. 132). Adjoining a spacious oval dome, whose greater d diameter lies on the main axis, is an elongated choir, two s short cross arms and a narrow nave, between them being small radially arranged oval chapels. Over the chapels are galleries. At right angles to the nave, which is treated rather as a vestibule, lies a long and narrow passage, which at the first glance recalls the narthex of the Byzantine churches, but here is without any organic connection with the interior of the church. The master thereby obtained a wide facade, that he treated in a peculiar way. (Fig. 133). Before the principal entrance he placed a hexastyle portico designed strictly
15 after the antique scheme. He accented the angles by architectural parts, which are half towers and half pavilions, indeed appearing as decorative structures built over the passages arranged at each side. Perhaps these were to serve as driveways for the more important visitors to the church, who used carriages. Between the angle towers and the columnar p portico he erected slender bell towers attached to the facade in the form of Trajan's Column in Rome; thus originated a rather wonderful composition, but which is well harmonized with the high [illegible] of the dome and gives the structure an original and extremely picturesque charm. The architectural treatment of the forms, particularly in the interior, recalls that of the school of upper Italy in the late Renaissance and Barocco styles.

Of Fischer's activity in secular architecture are first to be mentioned his plans for palace Schönbrunn near Vienna, that by the command of the emperor Leopold II was to take the place of the Renaissance structure ruined by the Turks in 1683. Fischer utilized the sloping site for a grand arrangement of terraces and cascades, that extended before the palace

lying on the hill. This received a U-shaped plan with a court widening in front by two great stages, whose extreme front portion is flanked by stables, and that opposite the palace by the housekeeping buildings. The internal subdivision and treatment of the rooms and the external architecture were much altered by later masters (after 1744). Likewise for the rebuilding of the imperial palace Hofburg, Fischer furnished several plans, which were but partly executed. He built a n new facade on the long palace of the imperial Chancellery on the side next the court of the Palace, which received an animated treatment by three projections with gateways and balconies. (Fig. 134). The two low bottom stories he treated with
155 rustication, and combined the two upper ones by a colossal o order of Corinthian pilasters; the projection was increased in height by an attic with crowning statues. The Winter Riding school likewise belongs to the imperial Hofburg (1716) a and comprises a great rectangular hall enclosed by a high platform with Corinthian portico and gallery, and covered by a horizontal paneled ceiling. Indeed with reference to the adjacent portions of the Hofburg, the facade is in four stories with rustication in the two lower and a division by wall strips in the two upper stories, the third one as the principal story exhibiting round arched windows with richly ornamented pediment caps. In the year 1703 Fischer commenced the palace of Prince Eugene, the present Ministry of Finance. Here his architectural conceptions inclining toward the architecture of upper Italy were expressed with particular clearness. The long and unbroken facade, treated with heavy portals, has two lower half stories covered by rustication, above being a colossal Ionic pilaster order extending through the principal a and an upper half story. The interior merits especial consideration by the grand stairway design and the magnificence of the entire internal treatment. Likewise for palace Trautson, (now palace of the Hungarian Lifeguards), erected 1720-1730, Fischer selected rustication for the high lower story and a great Composite pilaster order combining one and a half stories. There the windows of the main story are crowned by extremely rich additions, particularly in the middle building.

This palace may pass as the creative building of that style tendency developed in Vienna running parallel to the French Regency style, and which is there termed the Prince Eugene style. For the court Library in Vienna Fischer designed the ground plan. The execution (1723-1726) he did not survive. The exterior of the very beautiful internal creation, consisting of a domed hall and two wings, has a simple construction as a rusticated ground story and an Ionic order; the façade
150 is interrupted by these projections but exhibits an intentional severity, which by the avoidance of all curved lines attracts attention in comparison with Fischer's other buildings. Evidently his otherwise little known son and successor in office, Joseph Emanuel Fischer von Erlach (1695-1742), who was already more strongly inclined to French influences, chiefly influenced the treatment of the facade.

The art style of the elder Fischer exhibits a free and almmost easy creation designed for picturesque effect and in the architectural treatment a combination of the architectural t tendency of upper Italy, clarified by an infusion of the French art spirit, with the forms and the joy in ornament of the German masters; these are expressed particularly in the rich ornamental sculpture scattered over the facades with a refined feeling for rhythm. The imposing treatment of portals by statues, atlantes and balconies, the strong accenting of the principal axis, the bold Barocco ornaments over doorways and windows, the preference for hermes,are characteristic of him and determinative for the Vienna school. (Fig. 134).

The second great master of the Vienna Barocco style is Johann Lucas von Hildebrandt (1666-1745). He was born as the son of German parents in Genoa, received his training in Italy, early entered the Austrian service, and particularly enjoyed the patronage of Prince Eugene. For him was erected his principal work, the palace Belvedere in Vienna (1693-1724). The ground plan forms an elongated rectangle with polygonal angle pavilions. The principal axis is accented by the vestibule on the court side and on the garden side by a middle building containing the great hall. Through the one story and extremely gracefully treated vestibule (Fig. 135), one

passes to the state stairway in three flights, behind which lies the garden hall. The stairway leads to the great marble hall extending through the main and upper stories, adjoining which at the right and left are the rooms for court use. The plan of the palace fulfils in full measure all requirements
157 for suitability and comfort proposed by a princely court.The architecture permits the recognition of German art in design in the treatment of the architectural masses, in the emphasizing of certain portions of the structure by a separate roof and the sky line animated thereby, in the enjoyment of a rich alternation of architectural and ornamental expedients, and which also attained supremacy in the internal decoration, although its execution was supervised by a Frenchman. On the whole, Hildebrandt shows more inclination toward ornamental and graceful than to heavy forms, to refined but a freer treatment of the cornices, a great preference for slender hermes in the most varied forms, and for repeated interruption of l lines in the roofs. Around the shafts of the pilasters he liked to place a broad and usually decorated band (at about one-third their height). (Fig. 135). Hildebrandt is also designated as the builder of palace Daun, now Kinsky (1709-1713), whose facade has seven axes in width and shows a colossal Composite pilaster order above the rusticated ground story, combining two stories, and which has a magnificently treated interior (Fig. 136), as well as of chateau Mirabell near Salzburg, whose great main stairway and marble hall treated with hermes anr particularly famous. (Fig. 137). We shall return again to his participation in the planning of the palace of the prince bishop at Würzburg.(Page 182).

In church architecture in the Austrian provinces chiefly Jacob Prandauer (died 1726) of Pölten deside the elder Fischer von Erlach. He was the creator of the magnificent monastery of Melk located on the Danube (begun 1702), a colossal d design of high artistic importance. For the church arranged about in the middle of the inner clausure (volume 1, page 183), he assmued in general the ground plan of the church Gesu in Rome, but which he made three aisled by connecting the side chapels, elongating the principal axis to produce a deeper p

perspective effect. At the already mention Foundation S. Florian (page 152), Prandauer assumed charge after Carlone's death (1708). The magnificent gateway represented in Fig. 138 strikingly illustrates his art style. Characteristic for it is the very free treatment of the members of the cornice. (Fig. 125). By deep undercuttings and the preference of curved profiles, he sought to give to the cornice that life and bold effect of shadows, which were attained beyond the Alps in the clear light of the South and with the material these employed, which was also reached by much simpler and more severe design. Also the foundation church at Dürnstein (Fig. begun 1718 by him and completed 1733, testifies to his great gifts for the creation of monumental interiors, richly inventive and cheerful splendor. Prandauer was a powerful and independent artistic nature, worthy to be counted in the series of the chief masters of German Barocco art.

The pupils and successors of the great architects mentioned in general continued in the tendency laid out by them. Some painters also produced very prominent works in internal architecture. Thus Daniel Gran originated a treatment in the Court Library in Vienna, whose facades are very inferior, but whose freshness and wealth of invention merit particular consideration. (Fig. 140).

In the Tyrol country among the numerous architectural works of the Barocco period stands in the foreground the church of S. Jacob in Innsbrück (1717-1724), which was built by the native master Anton Gump (1670-1730), with the aid of the Italian Claudius Delevo. The interior is in one aisle divided i into four bays, but for the first two bays is extended by shallow chapels and at the third by semicircular apses like transepts. The three first bays are covered by transversely p placed low oval domes, the last one over the square choir having a round chapel. Here as at the government palace at Innsbruck (Fig. 141), also built by Anton Gump in 1719-1728), the master exhibits his power of treatment devoted to great expedients. In striking contrast to Gump's architectural style is the Catholic _asino there, a show piece of the gayest stucco decorations, which extend over the facade in lavish a abundance.

Of the Barocco buildings in Steiermark we have to mention the church of Mariahilf in Graz, kept within heavy Italian Barocco forms, for which Joseph Hueber built an elegant facade about 1744. (Fig. 106).

In Mähren the two Jesuit churches at Brünn (1602-1739) and at Olmütz (1692-1728), the former a basilican and the latter a normal plan with side chapels and galleries, are of the most prominent works on account of their splendid treatment.

The Bohemian capital, Prague, became the scene of rich architectural creation, where not only the clergy erected numerous churches, but also the feudal nobility built truly princely palaces in very great number, and where even the house of the wealthy citizen received a monumental treatment. (Fig. 142). There until the end of the 17 th century Italian masters chiefly had the lead, and indeed besides the Jesuits, principally the artist families of Carlone and of Lurago (page 151). The Jesuits erected the great and richly treated foundation of the Clementinum (begun 1653) and their Jesuit college in the New city. To the most important secular buildings of the Italians belongs palace Nostiz (1658-1660), built in the Kleinseite, whose powerful facade is subdivided by a Composite pilaster order standing on a rusticated base, as well as the grand palace Czernin on the Hradschin. This by the extremely monumental treatment of its facade produces a truly overpowering impression. The front is 472.5 ft. long and shows, above a lower story entirely covered by ashlars with panels, an unbroken series of heavy three quarter corinthian columns, that comprise three and a half stories. The direct transfer of the Italian columnar construction to northern soil is here especially pleasing.

The further development of Bohemian architecture was determined by the creations of German masters; these belonged to the artist family of Dientzenhofer, whose ancestor George the Elder was born in the year 1614 in Aibling in upper Bavaria, and whose sons, George the Younger (1643-1689), Johann Leonhard (died 1707), Christoph (1655-1722) and Johann (died 1726) exercised a very fertile activity, especially in the domain of Catholic church architecture. In Prague first appeared

Christoph Dientzenhofer with a very important work, the Jesuit church of S. Nicholas in the Kleinseite, begun 1673 and o only completed in 1760. The ground plan starts from the scheme of the chief church of the Jesuits, the church Gesu, but places a portico with an oval chapel at each side before the nave composed of three bays with side chapels, and enlarges the great domed area in trefoil shape by three shallow apses. The great boldness of the plan and of the architecture, the frequent curvatures of the walls, the diagonal positions of the piers (page 133) and the entire treatment of the forms permits the recognition of an intellectual connection with Guarini, who furnished a design for a Prague church. After the master's death his son, Kilian Ignaz Dientzenhoder (1690-1752) undertook the further work on the building. This highly esteemed architect received his training with his father, and worked with Fischer von Erlach in Vienna from 1710 until his return to Prague (1722), but also later visited Italy, F France and England. Among his church buildings in Prague, S. Nikolaus in the old city is the most important. It is a central plan with octagonal domed interior, oval chapels on the diagonals and short transepts, of which the two lying on the main axis are elongated, indeed in the choir by two bays and a semicircular apse, at the opposite end by a vestibule. The external impression is determined by a great portal, the dome and two low angle towers. The architecture here appears, as also on the facade of S. Nikolaus in the Kleinseite executed by him (Fig. 111), in very animated and indeed capricious forms. More quietly restrained are the two secular buildings of the master, palace Golz (now Kinsky) and palace Piccolomini (now Nostiz am Graben), which in plan and treatment of forms show a close relationship with the Vienna palaces of Fischer the Elder and of Hildebrandt. The Vienna instructor of our master, Fischer von Erlach, was likewise employed in Prague. He had built there palace Clam Gallas (1707-1712), whose facade was quite astonishing by the dignified pose and the two state gateways, where atlantes supported the balconies. We shall later meet again with the Dientzenhofers.

IN BAVARIA, the cathedral at Kempten (1657-1666) is the ea-

earliest great architectural church structure, worthy of consideration by the interesting combination of the nave system with the central plan; into which an octagonal enclosed central building recalling Dutch churches, which directly opens by one side into the middle aisle of the basilican nave. The independence of the northern master Michael Beer from Au near
102 Bregenz from the scheme transmitted by the Italians is here particularly evident. About ten years later the cathedral at Passau was rebuilt anew by Carlo Luragho (1638-1697) on the foundation walls of the cathedral burned in 1660, and it was furnished with a facade having two towers, the interior after a collapse and another fire being restored by J. B. Carlone, and treated in a masterly way by a powerful architecture executed in stucco.

An important starting point of a peculiar German-Barocco became the far removed monastery of Waldsassen in the Fichtel mountains. There George Dientzenhofer the Younger erected in 1685-1689 a chapel dedicated to the Trinity, in which he held himself free from all traditions. He chose for the plan a c central design indeed referring to the Trinity, composed of an equilateral triangle with sides 45.9 ft. long and having semicircular apses on each side, producing a trefoil shape. Around it extends an aisle 13.1 ft. wide. The architecture is still uncertain and inferior; the exterior almost makes the impression of a mosque by the enclosed architectural masses with half domes and the slender round towers over the projecting angles of the nucleus structure.

103 The principal works of Bavarian Barocco architecture (aside from the buildings in Franconia) originated in and near Munich. There in the year 1663 Agostino Barelli (died 1679), called from Bologna by the elector Ferdinand, commenced the erection of the Theatine church of S. Cajetan, which after him w was continued by a master from Graubünden, Enrico Zuccali, (died 1724), and completed by Francois Cuvilies (1698-1767), who came from France and was employed in Munich after 1725. The ground plan (Fig. 105) in general follows the lines of t the plan given by the church Gesu in Rome. The facade with two towers and executed in stucco by Zuccali, with the except-

exception of the middle portion, elegantly treated by Cuvilies. The heavy internal architecture is exclusively in broken white, and with the dry acanthus scrolls in relief, the luxuriant wreaths of leaves and the twisted columns at the altars, exerted a lasting influence on the south German Barocco. On the church of Dreifaltigkeit (Trinity), built 1711-1614 by G. A. Viscardi, containing a square interior with the corners c cut off, with four short cross arms, vestibule and choir, the picturesque and truly Barocco facade merits consideration.

About the end of the 17 th century also began the great activity of the Bavarian electors in the erection of chateaus. In the year 1701 Max Emanuel had the chateau of Neue Schloss placed on the same axis and opposite the little chateau of Lustheim, erected by him in 1682 near Schleissheim. The very extensive structure consists of an elongated main building of small depth and two widely separated pavilions, connected with it by low galleries. The total length amounts to 1082.7 ft., that of the main structure being 554.5 ft. The extremely simple building is furnished internally with stucco decorations by a German artist, Joseph Effner (died 1745), rich in thought and finely designed, exhibiting the German Barocco at its highest perfection, and belong to the most graceful and worthy examples of the entire period. (Fig. 143). In Nymphenburg Agostino Barelli in 1663 commenced an unimportant chateau for the electress, that was enlarged by Viscardi and Effner. In the extensive park originated later some small chateaus of high artistic value, the Pagodenburg in 1718, the Badenburg in 1718, both erected by Effner, and the Amalienburg built by Francois Cuvilies in 1734-1739 (Fig. 144), whose interior was completed by a master evidently trained in the school of Robert de Cottes (page 75) with the assistance of German artists, in an extremely elegant Rococo style. Cuvilies was also the creator of the "Rich chamber" in the Royal palace restored after a fire in 1729, and which with the Amalienburg reaches the climax of the early Rococo. In the Palace theatre erected by the same architects in 1751-1753, this attains full maturity.

Among the private buildings of Munich is to be mentioned

palace Preysing by Effner about 1727, which in its architecture is nearly allied to the palaces in Vienna and Prague; it shows the perfection of the Munich style of Barocco at that time, when Cuvilies introduced the French Rococo.

With the most interesting creations of the Munich Barocco, as well as for the Barocco generally, belongs the small church of S. John Nepomuk. This was built about the year 1733 by the members of a widely distributed and very celebrated artist family, the brothers Asam. They were sons of the church painter Hans George Asam (1649-1711) from Sulzbach in Bavaria. The elder, Cosmas Damian (1686-1739) was a painter and etcher; the younger, Aegid Quirin (1696-1750) was chiefly employed as stucco-worker and sculptor, but also as architect and painter. They were chiefly in the service of ecclesiastical employers and decorated numerous churches and monasteries with an abundance of forms and color, that in like manner drew upon the architecture as well as sculpture and painting to attain the desired effect. Their highest triumph was indeed celebrated in the monastery at Weltenburg on the Danube (1717-1721) and in the before mentioned church of S. John Nepomuk at Munich, (Fig. 145), where a truly capricious flood of forms was poured over a comparatively small interior. * Of the other numerous Barocco churches of middle and southern Bavaria can be mentioned only the great monastery church at Fürstenfeld, built in 1718-1736 aflte the plans of the court architect Viscardi, whose spacious nave was decorated by the brothers Asam, and the still more important Benedictine church at Ottobeuren (1737-1766), whose architect we must regard as Johann Michael Fischer (died 1766), much employed in south Germany, an architect influenced by Viscardi, who according to the inscription on his tomb in the Frauen church at Munich, erected 32 churches and 23 monasteries. The ground plans and architecture of these churches in contrast to the other Bavarian churches of the time already exhibit a return to a more severe conception.

** The style of decoration in upper Bavaria acquired a determining importance for the development of Barocco and Rococo decoration in nearly all southern Germany. Besides the very busy Asams were engaged at most important building sites stuc-*

stucco-workers and architects, at first in subordinate and l later in leading positions, who came from the famous school of stucco-workers at Wessobrunn in upper Bavaria, among which the families of Zimmermann, Schmutzer, Uebelher and Feichtmayr have become particularly known. Until about the year 1725, they held fast to the school forms developed on the basis of the late Italian Barocco, but then passed over to the Rococo, which they finally carried to the last extreme. We meet with Wessobrunn masters at the Abbeys of Wessobrunn, Ottobeuren, Ettal, Weissman, Weingarten, Zwiefdlten, Neresheim, Amorbach etc., as well as under Effner on the chateau at Schlessheim, under Cuvilles on the Amalienburg and in the rich apartments of the royal palace at Munich, under Neumann on the chateau at Burchsal etc.

Predominating foreign influences appeared on the great chateau of the Margrave at Ansbach, and indeed on the new building in Italian of the Palladian tendency, erected by Gabriel de Gabrielis after 1710, on the rebuilding by the architectural director G. W. von Zocha (after 1723), the French-Classistic. The interior was decorated by Diego Carlone with the aid of native masters in a very delicate early Rococo.

In SOUTHWEST GERMANY and the adjacent SWITZERLAND, church architecture was dominated by the masters from the Bregenz f forest (Vorarlberg). After the end of the great war, from w which they were spared in their native land of Vorarlberg, they went down into the valley to seek work as masons, stonecutters and stucco-workers. They had not lost connection with the architecture practised before the war, and their innate art in design was not turned in a definite direction by learned studies in Italy and France. In their first unimportant and naive works, but soon executed with the assured hand of the artist, is manifested a primitive and rich power over form, particularly directed to the grand and dignified treatment of interiors to demand attention. They are chiefly the architects Thumb, Buen, Moosbrugger and Beer. Peculiar to their churches is a greater length of the longitudinal axis, the extension of the domed area arranged in the middle to a more strongly expressed transverse aisle terminating in apses,

the high side aisles and the piers supporting the vaults; thereby in comparison with the churches built after Italian models, the effect of the interior is quite importantly enhanced, not only in the depth, but also particularly in the height of the interior. (Figs. 146, 149).

By these Vorarlberg masters are the two most important Barocco churches of Switzerland, the Foundation churches at Einsiedeln and at S. Gall. The creator of the church at Einsiedeln was Caspar Moosbrugger (1646-1723). Local conditions restricted the master in the free development of the ground plan. He chose for the included Gnaden (mercy) chapel a great octagon occupying nearly the entire width of the church and with a middle pier to support the vaults, adjoining this being a three aisled nave. The rich internal decorations were executed by the brothers Asam. The Foundation church at
167 S. Gall was commenced in 1756 by Peter Thumb from Constance, a son of the Vorarlberg Thumb, and it was substantially completed in 1769. The ground plan exhibits a domed area arranged at the middle of the axis and occupying almost the entire width of the three aisled nave, the side aisles being continued around it, as employed by the Belgian Faid'herbe on his church Notre Dame d'Hanswyck at Mechlin. (Fig. 98).

In Wurtemberg Franz Beer built the Premonstrant abbey at W Weissenau, in whose church (1717-1724) he fully applied the hall system peculiar to the Vorarlberg school. The ground p plan is composed of a wide middle aisle and narrow side aisles, divided into five bays, in the second and fourth bays being extended in transverse aisles to heighten the internal e effect toward the altar. The same master also prepared the design for the great monastery church in Weingarten (1715-1722). In it was to be produced a design, which should surpass all previous Barocco churches of south Germany. (Length 390.4 ft.). The master again chose the nave with wide middle and narrow side aisles, but extended these at both sides of the domed interior placed nearly at the middle, into a transverse aisle with semicircular apses, which he also repeated at the end of the middle aisle. (Fig. 110). The galleries over the side aisles recede toward the external walls to enhance the

effect of the interior of the middle aisle. The facade is f flanked by two towers. On the internal treatment were employed men from Wessobrunn and Italians; the famous ceiling frescos were by C. D. Asama A purely central building is the Pilgrimage church at Steinhausen,(Figs. 148, 149), indeed of modest dimensions but artistically very worthy of consideration, erected 1727-1733 by a Wessobrunn architect, Dominicus Zimmermann, on an oval ground plan with tall piers and splendid decorations increasing from below upwards. (The paintings were by the master's brother, Johann Zimmermann). To the greatest religious buildings of the 18 th century also belongs the monastery church at Zwiefalten (1738-1765), a work of a south G German church architect already known to us, Johann Michael Fischer (page 165). the ground plan shows a spacious vestibule, over which is the organ gallery, a wide middle aisle with four chapels on each side, a slightly projecting transverse aisle, with a middle domed area and a long choir, consisting of one and a half squares. An imposing columnar architecture subdivides the interior, more developed in height than in width, which is otherwise finished with extremely rich Rococo decoration.

Among the Wurtemberg Barocco churches, aside from the monastery churches at Schöntal and Neresheim to be considered later (page 185), are also to be reckoned further the monastery church at Wiblingen, built 1772-1781 by the Allgäu master, J. G. Specht, a bold work with an overpoweringly grand treatment of the interior, entirely differing from the previous types of plan. The ground plan (Fig. 150) is composed of three adjacent squares, the first of which lies behind the entrance and has an internal length of 77.4 ft. at the side, the middle one is 84.6 ft., and the last being 48.0 ft. and forming the choir. The front square is curved outward at the entranci side, the middle one is intended for the altar of Mercy (Gnaden) and is enlarged by two great segmental apses, so that the middle room appears as nearly a circle of 88.9 ft. diameter. The choir ends in a semicircular apse. Thus with all the mobility of the lines a unified and imposing internal view is created. The architecture itself already belongs to

the succeeding period of Classicism.

For the erection of chateaus foreign architectus were chiefly called into the country. On the chateau at Ludwigsburg, begun by duke Eberhard Ludwig in 1704, Lieutenant Colonel Friedrich Nette (died 1714) at first erected the so-called Fürstenau (prince's building), a narrow but high and long structure of no artistic importance, before which was arranged a square court of honor between two narrow wings. After Nette's death the duke entrusted the completion to Donato Frisoni (b (born 1683 on Lake Como; died 1735), previously engaged in Prague, who at the command of the duke had studied in Paris. He added the later buildings to the wing already established by his predecessor, but recessed them by two small offsets, (after the model of Versailles, page 87), and erected opposite the Fürstenbau as a termination the new wing. Thus originated a very deep rectangular court 524.9 × 196.9 ft., narrowing toward the main building (as in Versailles), which was divided into two parts by a grille. The gateways arranged between the wings opened on picturesque views. But otherwise the architecture and the form of the ground plan is without importance artistically, and likewise the internal decoration. Only the chateau chapel, arranged as a small central structure, forms an exception, and which was splendidly decorated in color by Italians. Frisoni also prepared the plan for the city of Ludwigsburg founded by the duke in a thoroughly Dutch character. The chied work of the secular architecture of Wurtemberg is the new chateau (Neue Schloss) at Stuttgart, built under duke Carl Eugene. For this Leopold Retti, (died 1751), a nephew of the Ludwigsburg court architect Frisoni, who like him had received his training in Paris and from 1726 was in the service of Wurtemberg, then from 1730 to 1744 in that of Ansbach, prepared a design in the year 1744, and after advice and competition plans were received from other architects of fame (page 184), this was accepted for execution. The plan consists of three wings grouped around a d deep court of honor open in front, each of which has a middle projection and angle pavilions, the structure itself being in two stories, to which toward the court of honor on the main

building and the projections is added also a mezzanine story. Each story on the principal facade is subdivided by an order of pilasters set in pairs in a regular sequence. After the death of Retti the building was continued until 1768 by Pierre de la Guepiepiere, lacced from France and evidently trained in the school of the younger Blondel. The external architecture is executed in noble and almost classical forms; the internal decoration dates from a later time. Guepiere was a also the creator of the magnificent pleasure chateau of Solitude near Stuttgart (after 1763), whose masterfully solved ground plan comprises an oval middle hall, also indicated externally, with three larger and several small rooms, as well as the similarly arranged and charming chateau of Monrepos n near Ludwigsburg (after 1764), whose exterior exhibits a charming grace. The architecture here as in Solitude already shows the transition to Classicism; in the interior of the little chateau of Monrepos (1804), it is entirely treated in the forms of the mature Classicism.

In Baden the chateau of the Margrave Carl Wilhelm at Carlsruhe forms the chief building of the period. As then customary for the planning of large chateaus, the owner requested several architects of fame (Retti in Stuttgart, Neumann in W Würzburg, Pedetti in Eichstätt and de la Guepiere in Stuttgart) to furnish plans. But the execution followed in 1752-1756 by Albrecht Friedrich von Kesslau (an officer, who by permission of the margrave had studied for two years in Paris), indeed after plans for the building furnished by him. Adjoining the principal building, in whose axis lies the vestibule and the main stairway, at an obtuse angle of 135° determined by the city plan were two wings, of which the northern contains the chateau church. A great rectangular garden hall terminating in semicircles at both sides lies between the main stairway and the so-called Lead tower (Bleiturm), a remnant of the hunting chateau built on the site in the year 1715. This tower forms the starting point of 32 streets or alleys radiating toward the points of the compass. On the southern side extends in a great semicircle the city of Carlsruhe founded by the margrave. The Dutch influence is here undeniable,

as it is also expressed in the chateau itself, particularly in its cold and reserved architecture (Fig. 151). Special interest in the history of art must be afforded by the chateau at Bruchsal built by Damian Hugo von Schönborn, prince bishop of Spires. Like most Barocco chateaus the plan consists of three wings at right angles to each other and enclosing a court of honor, the middle one of these containing on the axis the main stairway and the main hall, while in the one w wing with chambers is arranged the chateau church and in the other the great music hall. But the principal stairway differs entirely from the usual design in being rectangular with three straight flights. It lies in a domed room nearly circular and arranged in the middle of the main building, which in the principal story is treated as a vestibule, and to which lead up the two branches of the stairs 9.8 ft. wide adjoining the wall of the dome. The excellently lighted and splendidly decorated domed interior makes an extremely overpowering impression upon the visitor ascending the stairway, which was indeed the purpose of the creator of the plan. Likewise the remaining treatment of the interior is extremely fortunate in regard to its arrangement, the gradation of the dimensions and the connection with the subordinate rooms. The entire interior of the chateau presents in its splendid internal decoration, chiefly executed by the stucco-worker from Wessobrunn, Joh. Mich. Feichtmeier, and of the two painters Johannes and Januarius Zick, also in the sense of the time concerned, expresses the conception of suitability and comfort. According to recent investigations * the basal plan was by Anselm Franz von Ritter zu Grünstein, a master chiefly employed in Mentz, but also engaged in Pommersfelden, Bamberg and Wetzlar. The building was commenced in 1720. From 1728 onward Balthasar Neumann (page 180) had charge, under whom nearly the entire main building was executed on the remaining foundations, including the stairway. The principal apartments received in 1750-1755 their completion in the most flourishing and extremely elegant Rococo in purely German designs. (Fig. 127). For the chateau at Mannheim, more prominent by its magnitude than by the arrangement of the ground plan and its tr-

treatment, which the elector Carl Philip of the Palatinate h had planned in his newly founded capital in the year 1720 by the French architect Jean Clemens Froimont, previously architect of the archbishop of Spires; Daniel Marot had (page 111) designed the general plan. But this was evidently often altered by Froimont, and indeed not to its advantage. The ground plan has a U-shape with very long front wings (1968.5 ft). From 1740 to 1748 Alessio da Galli Bibiena (died 1748) had charge, then Nicolas de Pigage from Luneville (1721-1796), t the building director of Carl Theodore. The most valuable r rooms are the room of the electress and the library. Bibiena was originally only employed as theatre architect at the court of Carl Philip, but in 1740 rose to become the upper director of the elector of the Palatinate, and he was ennobled by the elector, also furnishing plans for the tower and the facade toward the parade place of the dignified Merchants' Hall erected in the heart of the city (after 1725); with his pupil F. Wa Raballiati he built the Jesuit church (1738-1760). It is a spacious and nobly treated building on the scheme of the church Gesu in Rome with a gabled portico before it, that opens toward the street in three round arches. Consideration in the history of architecture is further due to the city plan of Mannheim, after the destruction in 1689 by the French at the command of Louis XIV, which the elector Johann Wilhelm caused to be undertaken in accordance with the dimensions of a plan (page 123) prepared by the Dutch fortification architect Menno von Coehorn (1641-1704). Starting from the chateau, the streets were straight and entirely equidistant at right angles, distributed like a chessboard. For this not merely purely practical considerations relating to the utmost possible facilitation of traffic and hygienic attention to aiding a current of air through the straight streets was determinative, but indeed also a certain material sense, which by these streets everywhere opened a view of the wide and flat landscape. The preference of the elector Palatine for nature was expressed in the design of the very famous chateau gardens in the neighboring Schwetzingen, the summer residence. It was begun in 1748 according to a plan of the court gardener Augu-

Aug. Petri of Zweibrücken, and after 1757 was carried further by Nicolas de Pigage. The latter had studied in Paris and h had undertaken great journeys through France, Italy and England, whose experiences he could utilize here. The Schwetzingen chateau garden is the ideal of a Barocco garden in the grand style with broad alleys, water basins, cascades, statues, temples, ruins and foreign architectural works (among others and imitation of a mosque), indeed entirely on a geometrical basis (page 111). The older portion with the straight rows of trees was extended by an "English garden".

* *Das Bruchsaler Schloss. Heidelberg. 1910. Fritz Hirsch. Ph. R.*

With the artistically most worthy monuments of the Barocco style on Baden soil is to be reckoned still the Pilgrimage c church at Walldürn built in 1698-1709 under Lothar Franz von Schönborn, archbishop of Mentz and Bamberg (Figs. 152, 153, 116). With the use of older architectural parts, it was built after the plans of Leonhard Dientzenhofer as a single aisled church with deep side chapels, transverse aisle and choir. The internal treatment has something of the style of Prandauer in its proportions to the interior, and the members are w well harmonized together, as well as the wood carvings in the entire south German character developed from the Italian Barocco. The stucco work exhibits a banded ornamentation, which recalls that of Jean Berain (page 72), but which is here richly permeated by acanthus motives, in an extraordinarily elegant lines and charming and peculiar mouldings, whose effect is further enhanced by the delicate color tones and rich gilding. It is counted among the finest and most excellent stucco decorations of the period.

MIDDLE GERMANY AND RHINE PROVINCES. In Saxony the early a and yet undeveloped Barocco style is represented by the palace in the great garden at Dresden, erected in 1679-1693, probably by Johann George Starcke. The plan as a rectangular m middle building, that encloses a single great hall, with two wings projecting on both longer sides and a double flight of steps between the latter, as well as the entire architecture, (Fig. 124), permits the recognition of a predominating influ-

influence of the Italian late Renaissance. An extraordinary advance was made by the architectural activity in the Saxon capital, after the elector Friedrich August the Strong of Saxony was elected king of Poland (1697). The energetic prince was very much inclined to a luxurious court life, and for the realization of his architectural ideas, he found in Mattha"us Daniel Pöppelmann (1662-1736) an architect of quite unusual gifts. From 1707 he was engaged on palace Taschenberg, of w which almost only the wide four story facade, subdivided by a middle projection with rich window decorations, remains in its original condition. Pöppelmann's most splendid creation is the great court of honor enclosed by showy buildings, which received the nage of Zwinger from the piece of ground used for them. (1711-1722). This is the executed portion of that ghand festal plan, in which August the Strong desired to have a place for holding games and festivities of all kinds. The Zwinger has a rectangular area measuring 347.8 × 350.0 ft., enlarged on both longer sides by smaller rectangles terminating in semicircles to a transverse axis of 669.3 ft. At the angles and on the axes are erected two story pavilions, that are again connected together by one story gallery structures. The architectural ground motive is formed by 175 the arcade between pilasters and hermes with rich broken entablature and balustrade, taken from the Roman Barocco, the l latter sometimes serving as a parapet for the terrace covering the galleries. The whole is a creation of the happiest proportions in ground plan and structure. It bears an ornamentation developed from an intimate combination of the architectural members with ornamental and figure relief, but holding itself entirely free from the Rococo, in an overflowing abundance of forms, but which is retained within fixed bounds by the strongly accented main lines of the architecture. (Fig. 154). Thus the Zwinger appears as a reflection of the powerful, strutting, spirited and pomp-loving princes, for whom t this grandiose Barocco architectural work, as if surrounded by the existing odor of champagne,,supplied the desired background for its splendid and luxurious festivals.

Besides Pöppelmann an important church architect was emplo-

employed in Dresden, George Bähr from Fürstenwalde, the crea-
tor indeed of the most famous Protestant church on German so-
il, the Frauen church (1726-1743). The ground plan (Fig. 155)
comprises a circular principal room surrounded by eight piers,
that is extended on the axes by niches, three of which conta-
in the entrances, the fourth and larger comprising the choir
with an apse. On the diagonals lie stairways to the galleri-
es arranged in seven tiers above each other. The internal p
plan shows the most favorable solution yet found for the prob-
lem of obtaining a ground form and internal treatment suited
in every respect for the Protestant divine service. On the
exterior the ground plan is enclosed by a square about 131,6
ft. on a side, with cut-off corners and projecting choir apse.
The middle parts and the oblique corners are treated as proj-
ections; the former terminate in pediments, and the latter in
small towers like finials. Behind them rises, starting with
a great concave curve, the dome crowned by a lantern. (Fig.
155). Everything and even the dome and the remainder of the
roof is constructed in red cut stone with an amazing certain-
ty in construction. The general impression is very imposing
by the simple, clear and somewhat dryly treated architecture
and the animated outline. The Frauen church is an entirely
independent phenomenon in art history with an expressed Germ-
an-citizen-Protestant character. The Catholic court church
erected near the palace in 1738-1751 had an Italian as its c
creator, Gaetano Chiaveri (1689-1770). It was built in an el-
ongated rectangle, terminating at the end in a semicircle, a
around which extends a narrow ailse with galleries, and along
each of the two longer sides is an outer aisle having twice
the width of the former. The rich external architecture, par-
ticularly in the high tower built over the main entrance, re-
calls the art of Borromini. Bähr's school appears in the An-
nen church in Dresden built in 1765-1769 by his pupil Johann
George Schmid (1707-1774), a rectangular hall (75.5 × 108.3
ft.) with galleries extending around it in oval form (Fig.
156), and is even more strongly expressed in the likewise Pr-
otestant Kreuz church at Dresden (1769-1792). For it the gr-
ound plan is developed from a square, which is extended on t

the longitudinal axis by a semicircle at each end and on the right and left by a narrow side aisle continued in a semicircle at the choir end. At both sides of the tower erected over the main entrance lie the stairs to the galleries. The external architecture was influenced by the French-Classistic tendency; the interior (Fig. 151 shows the earlier condition) was enclosed in 1900 in modern forms after the preceding fire.

Of Bähr's private buildings in Dresden may be mentioned the palace de Saxe and the British hotel, both erected about 1720 as important city residences for the nobility, in an energetic style, often dry in details.

Besides the art tendency laid out by Pöppelmann and Bähr, another made itself felt in secular architecture in Dresden, which took its rise from the French-Huguenot school, and was represented in Bresden after 1713 by Zacharias Longuelune (1 (1669-1748), educated in Paris. He commenced in 1715 at the command of the count of Flemming the Dutch (Japanese) palace as an enclosed rectangular plan with four wings, the longer sides being accented by middle and angle pavilions. The architecture of the court was by Pöppelmann. From 1728 onward the palace had meantime been acquired by king Augustus and was considerably enlarged. In that year Jean de Bodt, likewise educated in Paris, came to Dresden from Berlin (page 195), where he had obtained great success with his buildings in the French-Dutch style. He there attached himself closely to Longuelune with the same tendency and undertook with him the enlargement of the Dutch palace. Architecture then received a strong classical element. On the main facade already appeared broad wall strips instead of pilasters, between which lie the windous with their parapets as recessed bands; only the middle building was treated with a columnar architecture and a pediment above this in the true French conception. The two masters mentioned also influenced Joh. Rud. Fäsch, who became known as the instructor at the Nobles' Academy and by the publication of his two manuals on architecture, and who in his first work, chiefly presenting architectural details (windows, doorways, pilasters, columns, balconies and the like), showed himself a pupil of Pöppelmann, but in his second appearance

in 1722-1729 the endeavor is clearly apparent to maintain the severe tendency. The latter also enjoyed the favor of the c court in increasing measure from the beginning of the second quarter of the 18 th century. Consequently in Dresden the R Rococo did not reach full development. The principal master of Dresden architecture in the Rococo period was Joh. Christ. Knöffel, born in Dresden in 1686 (died 1752). His most important work was the palace erected for the powerful count Brühl in 1738-1751 on the Brühl terrace, which exerted a determining influence on Dresden architecture. The well conceived ground plan and the dignified architecture, subdivided in carefully graduated proportions, with the sparse employment of ornamental accessories permitted the recognition of the school of Bodt and Longuelune, from which Knöffel came. The internal treatment was graceful and elegant, but in uniformity without power. The famous building of its time was torn down in 1900.

Among the Barocco buildings in the remainder of Saxony are still a greater number of stately and palatial houses at Leipzig to be mentioned, and the Parish church erected in Grossenhain in 1745-1748 by Joh. George Schmidt, in which he selected the T-shaped plan, on account of using the old enclosing walls. (Fig. 121 C).

In Silesia the monastery church at Grussau near Landshut, built in 1728-1735 by an unknown master, is the principal work of the Barocco style. It has a choss-shaped plan, with f five chapels at each side of the nave and galleries over them. The avoidance of the straight line in the ground plan and on the pompous facade, and the entire treatment of the forms indicate the decided influence of the school of K. J. Dientzenhofer.

In Franconia the period of the Barocco and Bococo style brought the climax of its advance in art. There the Barocco architectural spirit indeed restricted the rich artistic powers of the people. The leading masters were the two brothers Leonhard and Johann Dientzenhofer (page 160), the last of these attaining the greater importance, and after them the chief m master of the French Rococo, the talented Balthasar Neumann. They had the good fortune to receive grand architectural com-

commissions from the prince bishops of the family of Schönborn, that distinguished and art-loving race, who fostered architecture with a passionate love of building scarcely existing then. Würzburg on the Main became the centre of Franconian art creation. In the 17 th century the Italian Antonio Petrini (died 1701) was engaged there, the creator of the imposing Foundation-Haug church (1670-1691). This had the plan of the church Gesu in Bome, but with transepts projecting more, a facade with two towers and in general earnest and heavy architectural forms. (Fig. 107). The very imposing dome dominates the picturesque view of the city of Würzburg. Petrini also built there on the old substructure of the tower of the University church (volume 2, page 311) the beautiful new tower, on which pilaster architecture was employed in the happiest manner. (Fig. 158). In the year 1707 began the rebuilding of the Romanesque Neumünster church in the Barocco taste. It received a new internal treatment, a Barocco dome and an impressive facade executed by Valentino Pezzani (died 1719), (Fig. 108), on which the strong curvature of the surface was indeed calculated for a favorable effect in the formerly very narrow Kürschner court. Besides the Italians mentioned, the German master Joseph Greising was employed at Würzburg in the first quarter of the 18 th century, who in the Rückermain building (1715-1722), the former official house of the Foundation of the Knights of S. Burkard (Fig. 123), returned to the forms of the early German Barocco usual at the beginning of the century. The church of S. Peter in Würzburg, dating from the middle ages, Greising rebuilt (1717-1720) in a spirited way; its decorative treatment recalls that of the church at Walldürn. (Page 173).

In the eastern and northern portions of Franconia the architectural activity of this time lay chiefly in the hands of the two Dientzenhofers. An exceptional position was alone o occupied by the city of Erlangen, founded in 1686 by the Huguenots and characterized by their architectural style, as well as the capital of the margrave at Bayreuth, particularly favorable to the Huguenots, who gladly took Huguenots into his service, or Italians, if particular show was desired. At Bamberg was built the church of S. Martin in 1686-1693 for t

the Jesuit college, as a cross plan with dome and galleries. It is not proved but is probable, that the design for the entire plan was by George Dientzenhofer. The facade was picturesquely constructed with great architectural means but without towers, but it must be referred to an Italian, perhaps to Petrini. For the new bishop's palace erected in Bamberg in 1695-1704 Lothar Franz von Schönborn took Leonard Dientzenhofer into his service. The building is in general tasteless and only possesses importance by the heavy pomp of the main hall. In Ebrach the same master erected in 1687-1698 the monastery buildings, which were planned in colossal dimensions, as became the custom thenceforth. On the likewise colossal conventual structures of the monastery at Banz (1698-1704) w was employed Johann Dientzenhofer. Likewise the ground plan and form treatment of the abbey church there (1710-1718) indicates the same master. It is a long structure consisting of a main room formed of two transverse ellipses and extended by two elliptical side chapels at each side, with a short vestibule between the two facade towers, projecting externally in segmental form, and an opposite long and rounded choir. (Fig. 159). The treatment of the interior exhibits a great and purely picturesque unity, that by the diagonally set pilasters with the horizontally curved transverse arches in the ceiling, and a favorable lighting produces an astonishing effect.

The master restricted himself to a much severer tendency on the cathedral at Fulda, already commenced in 1704 and completed in 1712. This is a three aisled basilican cross plan with a dome over the crossing and two towers on the facade. (Fig. 160). In the nave alternate narrow and wide bays. By the w well weighed proportions of the interior, nobly designed in the sense of the Roman Barocco, and the very strongly ornamented pilaster and arched architecture, together with an extremely favorable lighting, the interior belongs to the best creations of the church interiors of the time. Likewise in secular architecture Joh. Dientzenhofer proved himself a chief master of the developed Barocco style. In Pommersfelden he built in 1711-1718 for Lothar Franz von Schönborn, archbishop of Mentz and Bamberg, chateau Weissenstein, which is to be c

counted with the most important chateaus of the century, not
only with regard to magnitude, but also by the artistic value
of the great state stairway with two flights and halls as we-
ll as the main hall,subdivided by an alternation of full col-
umns and pilasters, together with the comfortable equipment
of the living rooms. In Bayreuth the margraves erected a se-
ries of Barocco structures intended to show their dignity, a-
mong which the Theatre built in 1744-1748 by Carlo Bibiena
from Bologna (page 35) merits special consideration. It has
an audience room forming a stilted semicircle in plan, with
three rows of boxes and a stage 98.4 ft. deep. The facade
is treated in severe classical forms, but the very rich inter-
nal decoration is in a refined Italian Barocco, in which app-
ear scarcely any motives of the architectural forms of the G
German and French Barocco prevailing at that time.

Meanwhile at Würzburg the architect of the prince bishop,
Joh. Balthasar Neumann (born 1687 in Eger, died 1753 in Würz-
121 burg) attained to high artistic fame. When Joh. Philip Franz
von Schönborn was consecrated prince bishop of Würzburg (1719),
he then adopted the plan of building an imposing and truly p
princely palace. The planning and execution he entrusted to
his capitain of artillery and engineer Neumann, who had taken
part in the campaign of Prince Eugene in Hungary, who at this
opportunity became acquainted with the Vienna buildings, and
who was known as a spirited leader and a highly gifted archi-
tect. Already in the following year (May 22, 1720) the corn-
er stone was laid with great solemnity; in 1744 the rough con-
struction was completed, and the internal decoration about
1775 (aside from the chambers rearranged in 1806-1820; page
279). The plan consists of a main building 547.9 ft. long w
with two side wings projecting in U-shape from this, which a
are grouped around two nearly square internal courts and lea-
ve open between them a deep court of honor. The wings have
facades of 190.3 ft. and a depth of 301.8 ft. From the court
of honor one passes into a spacious vestibule, behind which
lies the garden hall as usual. Neumann had planned a grand
state stairway at each side of the vestibule. On the advice
of the Paris architect Boffrand (page 78), before whom he la-

laid his designs for the palace at the desire of his employer in the year 1733 (he had likewise shown them to Robert de Cotte, page 78), only the stairway at the left of the vestibule was constructed -- not to the advantage of the general design. This stairway is built free in three very wide flights and t terminates in the upper hall, which surrounds the stairway w with wide passages. It is covered by a low mirror vault, on which Tiepolo executed his famous paintings. Form the stairway hall one continues on the axis at right angles to a court of honor to the adjoining great "white hall" (hall of guards), from this to the main hall projecting from the facade. (Fig. 161). On the right and left of this and along the garden front is arranged the series of great rooms for the court. The different rooms are carefully graduated in regard to tasteful changes in dimensions and heights. In the extreme angle of the right wing lies the Court church with the main entrance on the front. The facades on the long garden front and the outer sides of the wings, Neumann subdivided by middle pavilions and projections at the angles; the fronts of the wings and the side facades of the court of honor (Fig. 162) have o only projections at the angles, which stand in well weighed proportions to the middle projection, that strongly accents the axis of the recessed main building. After Friedrich Carl von Schönborn, who had previously been in the Austrian service as imperial vice chancellor, had ascended the bishop's throne and had entered into the inheritance from his brother Joh. Phil. Franz (in the year 1729), he caused the examination of the Würzburg building plans by the Vienna architect Lucas von Hildebrandt (page 156), then highly esteemed. A comparison of the plans sent to Vienna by Neumann in 1730 with the plan prepared by Hildebrandt in 1731 for the principal s story shows that Hildebrandt arranged on the outer sides of each wing facades a middle oval hall and also two windows beside it in a middle pavilion projecting in approximately a h half ellipse, while Neumann had provided rectangular projections; Hildebrandt further desired to have a long gallery in the right corner of the garden facade, but which was never executed, as well as some unimportant changes in the distrib-

distribution of the rooms, without other important deviations from Neumann's plan. To Hildebrandt's influence are thus substantially to be referred the round projections on the transverse axis, advantageous for the general appearance. The elevation consists of a high ground story, the principal story and two mezzanine stories, one of which lies above the ground story and the other above the principal story. The architectural system on the main facades toward the court of honor and on the middle pavilion of the garden facade corresponds to t the importance of the rooms lying behind this, is composed of Tuscan and Composite three quarter columns, which comprises one and a half stories, but elsewhere by the corresponding arrangements of pilasters. (Fig. 162); on the garden front t these are limited to the angle projections. (Fig. 126). The entire external architecture exhibits a very dignified and noble treatment. The interior contains the most splendid and costly apartments, in which all changes of style may be found, from the developed Barocco to the Classicism of the 19 th century. (Figs. 113, 163, 164). *

* *Likewise in purely technical respects this building is h highly interesting. The mirror vaults over the great halls and salons-- the vault over the stairway hall has the enormous span of 62.3 % 105.0 ft. -- are constructed of porous plaster casts 5.51 ins. thick with a careful strengthening by ribs cast in the same material, spaced about 4.92 ft. on centres, like the ridge, hip and jack rafters of a hip roof, with a breadth of 19.7 ins. and projecting 7.9 to 11.8 ins. above the back of the vault. The side thrust of the vault is almost entirely neutralized by an excellent statically executed and very simple system of trusses and by iron rods in the enclosing walls, indeed in the direction in which the thrust is exerted. Neumann applied to the roof beams a coating of plaster 1.58 ins. thick, to which it is chiefly due, that the great fire of the year 1896 in the roof framework could not extend downward.*

For the prince bishop Carl Friedrich von Schönborn, Neumann also built the important summer palace of Werneck (Fig. 165), whose formerly splendid internal decoration was entirely cha-

changed in 1801-1814 by the grand duke Ferdinand. How highly Neumann was esteemed in his time may be judged from the numerous commissions, which came to him from other reigning secular and ecclesiastical princes. We have already mentioned his activity at the chateau of Bruchsal (page 171). For the palace at Carlsruhe he prepared plans and also for the palace at Stuttgart, which, if they had been erected, would have far exceeded in area (length over 656.8 ft., breadth nearly as m much), the palace at Würzburg. * Also his plans for a palace in Schuetzingen and for a new imperial palace in Vienna were never executed.

* *The execution of Neumann's plan for the palace in Stuttgart would have cost more than two million gulden (florins). But the means available for the building could not have exceeded 600,000 gulden. Therefore the realization of the grand project could not be considered.*

Scarcely inferior in artistic importance to the secular works of Neumann are his monastery and church buildings. In Ebrach and Banz the monastery buildings commenced by Dientzenhofer (page 179) were enlarged and completed by Neumann, as well as in Schöntal. In Oberzell the master began in 1744 t the monastery building, distinguished by its dignified and rich treatment, and completed by his son Ignaz in 1760 with a very beautiful stairway in two flights. (Fig. 166). Of his numerous church buildings we mention only the Pilgramage church on the S. Nicholasberg near Würzburg, called the Chapel (Kappele), a central building with circular domed interior, which is enlarged by three great elliptical apses and a vestibule on the fourth side. Of the two slender facade towers and the little addition to the tower like a lantern over the central point, we have already given the upper portion. (Fig. 112). In the Pilgrimage church at Vierzehnheiligen (1743-1772) and the Abbey church at Neresheim (1745-1792), Neumann accomplished extremely important things in boldness and freedom in comparison to the previous mode of treating the interior. At the church at Vierzehnheiligen the ground plan (Fig. 167) is indeed externally enclosed by straight lines, like a cross-shaped basilica; in the interior it is composed of three

ellipses arranged beyond each other lengthwise, of which the middle and larger one is surrounded by four massive piers with side rooms like side aisles and two circular rooms arranged between the two front ellepses instead of transept arms. In Neresheim the church forms an undivided long building with a great elliptical middle room, adjoining which at each side are small ellipses as transepts and two large transverse ellipses. (Fig. 168). All ground lines of the interior are curves. Thereby is produced a grandiose animated architecture, which affords an apundance of charming perspective views. (F SFig. 169). Although the richness of the decoration planned by Neumann was never executed, the impression of the interior of the church is indescribably grand. Since the days of Christopher Wren (page 204), no architect of the West has dominated the internal treatment in regard to suitability, magnitude, proportion and construction in the same measure as the Franconian master; but in art imigination, the treatment of forms and in the absolute independence of the traditional l laws of harmony, he has far excelled the great Briton. Neummann gave its stamp to the entire Rococo art of Franconia, a and even in the Rhine provinces, he exerted a deep influence by his extensive works for the elector's court at Cologne.

In the smaller states of Saxony and of Thuringia adjoining the Franconian North, the principal activity of the period still falls in the 17 th century. In Gotha Andreas Rudolfi built for duke Ernest the Pious in 1643-1654 his chateau of Friedenstein, an imposing and massive building of almost a fortress character. Three wings enclose a rectangular court 282.2 × 213.3 ft., whose front is closed by a wall with a gateway. Wide towers flank the angles. The court receives an animated appearance by the arcades on massive piers extending around it. The Weimar Moritz Richter erected after 1651 the palace as a U-shaped plan in earnest and heavy detail forms, almost free from all ornament. (The existing subdivision dates from a rebuilding and enlargement executed after the fire of 1774. Of the chateau at Eisenberg built after 1677 only the Protestant chapel is noteworthy, a hall church with a series of corinthian columns, which support galleries rising in

three stories. The great church at Weissenfels (1664-1690) has a character similar to that of the chateaus of Weimar and Gotha. The chapel was designed by Sturm as a model (page 136u. Like that at Gotha, it is a simple hall church with galleries and without a special altar space. On these buildings appears externally the changed architectural tendency almost wholly in the omission of the pediment so characteeistic of the German Renaissance. Yet in the interior the Barocco character is shown in the mostly still immature stucco decoration, frequently recalling the gristle style, which in the low and narrow interiors shows quite oppressively. In the 18 th century in this architectural province scarcely any but small v villa-like chateaus originated, among which are the ducad hunting chateau of Belvedere near Weimar (1724-1732), that only shows on the exterior a richer treatment (Fig. 170) and in t the interior a simple Rococo, and in Gotha the chateau of Friedrichstal (1711) all in the simplest treatment. They have a chiefly French character.

In Hesse after the end of the 16 th century immigrant Huguenots in great number found willing acceptance and extended widely; they also soon obtained a strong influence over the court and the entire spiritual and art life. The plan of the palace in Darmstadt designed by their architect Jeremias de la Fosse was calculated for very great dimensions, but only a portion was executed (1716-1727), indeed in very reserved but refined and graceful architectural forms. In Hanau the Huguenots laid out the new city (Neustadt) on an entirely regular plan. Frankfort-a-M. received in the palace of Thurn and Taxis, built in 1732-1741, now belonging to the General Post Office, an imposing Barocco structure, that was designed by Robert de Cotte (page 75) and erected by an Italian, Dell' Opera, in the form of plan and the architecture of an important Paris mansion of that time. At Mentz the Dalburg Hof (1 (1715-1718), now the palace of Justice, is a separate appearance among the architectural monuments of Rhenish Barocco architecture. The very luxuriant forms recall the Prague art of the Dientzenhofers. Far more moderate in the architectural treatment, even if also otherwise rich in decoration is

the palace of the German Order, now palace of the grand duke, built by the original creator of the plan of the chateau of Bruchsal, A. Fr. von Ritter zu Grünstein in 1720-1727. On it only the middle projection toward the court rises to greater magnificence. The arsenal (1738-1740) built by General Welsch, a master inclined toward French Classicism, has a tasteless but intelligent reserve. On the charmingly located chateau of Biebrich on the Rhine (begun 1704) is expressed in v very restricted proportions, in the cold and dignified architecture and the rare ornamental work, almost entirely consisting of garlands in the sunken panels over the windows, the Huguenot-Dutch school. (Fig. 128). The circular middle building contains a domed hall with a portico and a coffered vault. In Treves the elector Franz George von Schönborn took i into his service the Franconian master Neumann (page 180). His school is recoginzable on the palace, now used as barracks. The palace of Kesselstadt (1742) built by Joh. Val. Thomann from Mentz exhibits a certain strain of the Vienna Barocco style.

At the court of the elector at Cologne was employed Joh. C Conrad Schlaun, trained in the spirit of Neumann. He designed the chateau of Brühl located near Bonn (after 1725).as a U-shaped plan with a rather narrow court, and had charge of the building until the year 1728; from then it was in the hands of Michel Leveille. After 1740 Neumann had (page 186) the dominant part in the building. The chateau is famous for the imposing vestibule, the magnificent stairway (Fig. 171), in which the doubled flight rises on coupled Composite columns, and for the festal hall arranged beside both and picturesquely treated with aisles. A charming creation is further the chateau of Benrath near Cologne, built in 1756-1760 for the elector Carl Theodore of the Palatinate by his court architectural director Pigage (page 172). The well conceived ground plan, consisting of a domed hall lying on the axis with adjacent apartments and the entire architectural treatment, that exhibits a simple dignity on the exterior of the one story structure, but in the interior already introduces the transition to Classicism, manifests the penetration of the art spirit prevailing in France at that time.

NORTH GERMANY in its western architectural regions is chiefly under the influence of Rhenish art. In Westphalia the previously mentioned Schlaun was the architect most esteemed. On the palace of Erbdrostenhof at Münster erected for the counts of Droste-Vischering after 1757, the master had the problem of erecting at the crossing of narrow streets a stately palace. Schlaun placed the principal axis on the line bisecting the angle formed by the two streets, then set the facad so f far back, that a nearly quadrant-shaped court was left free, which he enclosed by a grille with a splendid gateway at the extreme angle. From this opened to the visitor an astonishingly picturesque view of the facade built on the curved ground line in two and a half stories, on which is charmingly arranged the pavilion at the middle with the projection from it. The chateau at Münster first erected for the prince bishop Friedrich of Cologne after the plans of Schlaun is a U-shaped plan with broad court of honor, narrow wing and a middle pavilion on the principal building, from which is a rich projection with a pediment. (Fig. 172). There as on the Erbdrostenhof, the wall surfaces of the recessed portions are built of the native red brickwork, whereby an earnest and unquiet impression is produced, unusual in the other Barocco chateaus.

Cassel became a flourishing haven of the Huguenots and of their artistic endeavors, as being the capital of the landgraves of the electorate of Hesse, favoring the reformation. In the domain of architecture the members of the artistic family of Du Ry (Dury) were its chief representatives. Their activity in Cassel was introduced by Paul Du Ry, born in Paris, who with Marot and the fortification architect van Coehorn (page 172) was in the service of the stadtholder William of Orange, then in the year 1684 obtaining an appointment as captain of engineers from the landgrave Charles II in Hesse Cassel. In the year 1688 he began to lay out for his countrymen the suburb of Oberneustadt (upper new city). It received the stamp peculiar to the Huguenot cities, which we have already considered (page 111). In the centre of this part of the city he built in 1698-1706 the French church on an elongated r

rectangle with a hipped dome in an extremely simple style of architecture, only characterized by a finely profiled pilaster order. The chateau of Orangerie built in 1701-1711 in the Au has a strong Italian tendency, produced by an Italian journey of the landgrave Carl; but in the plan and architectural treatment the French-Huguenot feeling in form predominated. one would not err in ascribing this architectural work to Paul Du Ry (died 1757), who approximates to the German art and with the grace of the French style of architecture softens a and clarifies the oppressive forms of the German Rococo. His chateau of Wilhelmstal built near Cassel (after 1753) was dictated by French art taste in the ground plan, entirely calculated for suitability, and in the external architecture inclining to classicism, but the interior was decorated in a refined manner, more graceful and dignified than the heavy and pompous Rococo. (Fig. 173).

In Brunswick the German architect Fleischer erected chateau Richmond (about 1760), that exhibits a peculiar plan, entirely characteristic of the routine solution of the ground plan in the Rococo period. The building has a square ground area with the principal axes arranged on the diagonals. At its angles is built a projecting rotunda extending the entire height of the structure (1 1/2 stories), the front of which contains the vestibule, the rear having the festal hall. The o other rooms are very skilfully grouped around these principal apartments. The external and internal architecture is restricted within the bounds of the classistic conception prevailing in France at that time.

Hamburg received in the church of S. Michael erected in 1751-1762 one of the principal churches of German Protestantism. It was built by Ernst George Sonnin (1709-1794) from B Brandenburg with the aid of Joh. Leonard Prey, who was engaged in Dresden under Bähr in the erection of the Frauen church there. The retaining of the foundations of the nave church, built in 1649-1651 and burned in 1750, led to the insertion of a transverse aisle, so that a Greek cross originated with a polygonal choir (retained from the old church) and a tower 433.2 ft. high over the main entrance(burned in 1906). The

very imposing effect of the interior is even increased by the decoration recalling the Frauen church at Dresden, but infinitely richer in S. Michael's church.

In Berlin Joh. George Memhardt (died 1687), called from Holland about 1650 to become the elector's architect, led in the great architectural activity at the electoral court. The city plan designed by him with wide foresight of the architectural development of the still small capital of that time, to which the broad street of Unter den Linden and the Friedrichstadt owe their present form, is the highest undertaking of the time in the laying out of a city. Memhardt also at the command of the elector planned the chateau of Oranienburg, w whose middle building composed of three stories was alone subdivided by a Corinthian pilaster order comprising the two upper stories and wide angle projections with almost entire rejection of ornamental treatment. From 1690 onward Joh. Arnold Nering (died 1695), probably from Holland and likewise trained in the Dutch sense, continued the building further; he enlarged it and completed the internal architecture. At the same time Nering was engaged on the electoral palace at Berlin (volume 2, page 316) with Mich. Math. Smids (born 1626 at Rotterdam, died 1692), who had previously been employed with Memhardt in Berlin. He erected there with Smids the arched structure extending along the Spree as the termination of the third court in a noble, even if tasteless and entirely plain style of architecture, which is limited to arches in t the ground story constructed of ashlars and to simple window enclosures with caps in the upper story. Nering also began about 1695 the arsenal, important in the history of art, but he could not have been engaged on this more than a few months. The ground plan forms a square of 295.3 ft. on a side with four wings around a court 128.0 ft. wide. The design is ascribed (by Gurlitt) to the director of the Paris Academy of A Art, Francois Blondel (page 95). The severe design, the finely treated and truly French handling of the profiles, the dignified reserve, the lack of ornamental show (Fig. 174) permits the predominance of the French art spirit. (See the part taken by Bodt on page 195). By Nering was the design for the Parish church at Berlin, built in 1695-1703. He chose for it

the central plan in cross form, when to the square principal room, 59.1 ft. in the clear, he added four semicircular apses.* The erection was placed in the hands of the native master, M Martin Grünberg (1655-1707), and after the rejection of the dome, the very beautiful tower over the entrance was erected by Philip Gerlach (1679-1748). In the traceries in the windows and the buttresses of the apses is expressed a late imitation of the Gothic.

* *With regard to this building, Sturm had rejected the cross plan as unsuitable for the Protestant church.*

177 A splendid advance was made by Berlin art at the time when the highly gifted Andreas Schlüter (born 1664 at Hamburg; died 1714 at S. Petersburg) was called to Berlin (1694). He h had first worked in Danzig, then at the court of the Polish king Sobieski in Warsaw, where palace Wilanow indicates his assistance (page 227). In Berlin Schlüter was first engaged as a sculptor on the Royal palace, and likewise on the arsenal, whose supervision was taken by Martin Grünberg after Nering's death. On it he created the famous masks of dying warriors etc. above the ground story windows of the court. From 1698 to 1706 he was the leading architect of the rebuilding and extension of the Royal palace. He designed a grandly arranged plan, but which was only partly executed. By him were the three wings on the southeast, southwest and northwest enclosing the inner (middle) court of the palace. The architectural forms are developed from those of the Roman high Barocco. (Fig. 175). Their treatment exhibits a certainty and weight, such as appeare nowhere else in Germany at this time. Schlüter's gifts substantially show themselves in the interior decoration. The stairway in the southeast wing is a splendid work of monumental interior architecture executed with g great architectural expedients and rich sclupture. The apartments adjoining this (the so-called state apartments), in the richness of invention, the picturesque ground tendency and treatment of the forms of the stucco decoration have much similarity to those of Effner in the chateau at Schleissheim. Schlüter desired to erect an architectural masterpiece in the Lustgarten Place, the so-called Mint tower. After this had

been carried to a considerable height, it had to be torn down in 1706 on account of structural defects. Thereby Schlüter fell into disfavor. He was indeed further employed as sculptor, but in 1713 obeyed the call of Peter the Great to S. Petersburg, where he soon died in the following year. Schlüter was a powerful, independent and individual artist nature and one of the more important masters of the German Barocco. His strength indeed lay less in architecture than in creations in sculpture. These ensure to him -- the monument of the Great Elector in Berlin is the most prominent work of sculpture of German Barocco art -- a place of honor in the history of art.

After Schlüter's dismissal, Joh. Fried. von Eosander, called Göthe (born 1670 at Riga, died 1729 at Dresden) was appointed director of the erection of the palace. He retained this office from 1707 to 1713. Eosander was a chief opponent of the severe academic classicism. He therefore stood in strong opposition to Schlüter, in which Sturm seconded him (page 137); he first by the influence of his adviser won to his ideas the queen Sophie Charlotte, inclined to a scientific conception of art, and then likewise the king Friedrich I. At the command of the queen he carried further after 1701 her summer residence, the royal chateau at Charlottenburg, which Nering had begun in 1695. He there appears to have built the two wings, that enclose the court of honor measuring 249.4 ft. square, and likewise the very impressive domed tower 150.9 ft. high. (Fig. 176). In the internal decoration of the chateau chapel and of the porcelain chamber, he proved himself a skilful and refined decorator. At the palace in Berlin, in order to obtain the "great internal perspective" desired by the king, he extended the two facades toward the Palace Place and the Lustgarten Place. With regard to the already existing parts of the building, Schlüter's facade system was retained and only the northwest projection and the western facade were executed according to Eosander's designs. But even if the west portal, imitated from the Arch of Septimus Severus in Rome (volume 1, page 138), has a great effect, their architecture no longer stands at the height of Schlüter's creations, full of life a and character.

More personal, more full of imagination and refined are the works of the likewise classical Jean de Bodt (born 1670 as t the son of a Mecklenburgner in Paris; died 1745 at Dresden; page 177), yet designing in the sense of the French-Dutch art tendency. His activity in Berlin began in the year 1700. H He was there first engaged on the arsenal, developed its facades and indeed the beautiful middle structure of the principal facade (Fig. 174), in an entirely independent way. Of g great influence on the development of the later Berlin architecture was the magnificent portico with domed tower (1701) erected by him for the palace guard and to enclose the open side of the court at the City palace at Potsdam, whose grace recalls the works of French art of Mansard.

Under the reign of Friedrich Wilhelm I (1713-1740) a stop occurred in the court architecture of Berlin. The unpretentious, energetic soldier king, disinclined to the French nature, sought to restore the finances of the young state by wise economy and farseeing political measures, that had been ruined by the abundant activity in building and the luxurious court of his predecessor. When he closed his eyes, he had brought the country again to a flourishing prosperity. His son Friedrich II, the Great (1740-1786), zealously took up again the activity in art begun by Friedrich I. He found in George Wenceslaus Knobelsdorf (1699-1753) a German master of rare e endowments, who had prosecuted zealous studies both in Italy and in France. In him was combined in a very happy way an e expressed classistic tendency with a refined feeling for the decorative charm of the Rococo style. His Rococo is freer a and more imaginative than the French; it is in particular characterized by a luxuriant and rich naturalism. The structural basis almost entirely disappears in it. In an extremely easy manner the ornaments extend over the walls and ceilings, the hand being only guided by picturesquely ornamental considerations. In the treatment of the facades he followed the ground principles established by Boffrand. He was there a classicist, but more animated and personal than his Paris contemporaries in art. In Charlottenburg Knobelsdorf erected the eastern wing of the Royal palace, which in the upper sto-

story contained the "golden gallery" 131.2 ft. long and some living rooms, in a magnificent and splendid Rococo. From 1741-1743 he built at Berlin the Opera House, but of its internal arrangement only the Apollo hall remains in its original condition. The facades and especially the vestibule, treated like the front of an antique temple with six Corinthian columns, are designed in a thoroughly English-Palladian purity. In Potsdam Knobelsdorf had charge from 1745 to 1751 of the rebuilding and extension of the City palace, to which he gave on the exterior a severe and classistic architecture, b but in the interior again a showy Rococo ornamentation. The French church built there by him from 1751 to 1752 is a weaker imitation of the Pantheon in Rome on an elliptical ground plan according to scheme F in Fig. 121. His principal work is the palace of Sanssouci placed in the royal gardens (1745-1747), the favorite residence of Friedrich the Great, for the plan of which the king himself made sketches. The facade is 318.3 ft. long, one story, and it rises above three steps, and is interrupted at the middle by a strongly projecting elliptical rotunda with dome, that contains the principal hall. The series of rooms arranged at each side each terminates in a circular hall. On the garden facade by the arrangement of the king, who may have indeed opposed the master, always treating the exterior classically, instead of columns or pilasters are employed animated pairs of Barocco hermes, between them being high round-arched windows. (Fig. 177). They produce an unusually picturesque and imposing effect. On the entrance facade on the contrary in the semicircular projecting colonnades with coupled Corinthian columns, whose motive is continued on the facade, Knobelsdorf's art appears in entire purity. The interior exhibits in the main hall a grand subdivision by doubled marble Corinthian columns projecting from the wall and with a severely profiled cornice with consoles, otherwise in an elegant and extremely rich naturalistic Rococo with the master's matured individuality. We also see here, how in the last and most important Berlin representative of the most flourishing Rococo, the new classicism counterbalanced that. After his death the architecture-loving king had a design prepared (1755) for a new palace of Friedrichskron

near Potsdam by Joh. Gottfried Büring (born 1723 in Berlin) with the assistance of the architect Manger, which was only executed in 1763-1766. Even there the king made his influence felt, and who had been in Holland in the year 1753. The architectural members were constructed of sandstone, but the wall surfaces remained in brickwork without stucco. In the ground plan consisting of a main building with projecting wings, the great stairway is wanting. The apartments are decorated in a luxuriant Rococo, but which is no longer characterized by the refined development of Knobelsdorf's ornamentation. The facades have a single colossal order of fluted Corinthian pilasters, comprising the two and a half stories, and a massive main cornice with conseles and with crowning balustrades and saatues. (Fig. 178). The powerful relief decoration of the German Rococo here again animates the severe Dutch=classistic architecture. But it appears only as if applied, almost by compulsion, like an addition from an already departed time.

The then appearing master of Berlin architecture, Carl von Gontard, had already entirely renounced the Rococo. Therefore we shall follow his works in the next Chapter.

6. Architecture in the Period of the Barocco and Rococo styles in England.

I. Historical Evolution and Style.

In England the high Renaissance had prevailed until about 1665. The advance at about that time in political and social conditions also led to a similar one in the art life. When Charles II (1660-1685) after his exile had returned to the E English throne, his jolly inclinations, his love of show, and his endeavors for the external glorification of the monarchy soon appeared. After the precedent of Louis XIV, in whose country he had lived for a long time, he desired to appear as a Christian monarch, and he supported and favored Catholicism, without regard to the fact, that England was almost entirely Protestant. But also like the sun king, he wished to taste fully the cup of the enjoyment of life. The English court became the scene of the most unrestrained dissoluteness and passion. The example thus given was not only followed by t the nobility, but likewise by the people, previously subjugated by the war and by the hated Puritanism. The leading spirits, who had been before engaged in the contests for politics and religion, then turned to the polite arts, to the sciences and the arts.

The royal court was inclined to the Barocco style as offering a splended show. But the nation adhered to its traditions with the firmness inherent in its blood. In the dissensions between the Catholic court and the Protestant people were opposed two parties, which determined the tendency of architecture according to the strength of their influence. The respect for the crown was most greatly reduced by the love of p pleasure and of extravagance of Charles II. The national prosperity diminished. With king William III of Orange (1689-1702), the Stadtholder of the Netherlands, a Protestant monarch came to the throne. Under his reign the country took a great economic advance, that had a strong development of architectural activity as a result. Men brought to architecture a lively interest. Even the court circle and the nobility occupied themselves with architecture as a science and with its principles. The architects enjoyed a highly esteemed

position. The union of Scotland with England as the kingdom
of Great Britain was completed under queen Anne (1702-1714)
270 and produced a considerable increase in the power of the cro-
wn and of the circle of interests of the nation. The increa-
sed spirit of adventure of the entire people was expressed in
the enhanced activity in architecture. This was also much f
favored by the queen. But the succeeding monarchs took litt-
le part in it. So much the more animated was the interest,
that the nobility devoted to the architectural endeavors and
undertakings.

The evolution of the style of English architecture under t the given conditions must be carried out in a different way, than that of the contemporary art in France and in other countries ruled by absolute monarchs. The English state was not as centralized as those. London unlike Paris and Rome did n not form the intellectual centre of the nation. Absolutism had never been able to strike root as in France. The English people had won its freedom by severe internal conflicts, and understood how to preserve the rights of individuals. It was too conservative to give up its earlier acquisitions. Already during the preceding epoch had it adopted the teachings of Palladio in their entire extent. To the art philosophy of t the Englishman was it particularly near to strongly emphasize one requirement of the great Vicentine, that of truth. Like Palladio, he saw in the antique that art, which corresponded to that requirement in the highest sense. The influential p philosopher, Anthony Ashley Cooper, count of Shaftesbury (died 1713), established principles for art criticism, in which he would always have the organism considered as a whole, and designated the internal truth and naturalness as the supreme guide for every form.

In architecture this conception led to carefully weighed and distinct architectural ideas, to unified forms with a strict subordination of the masses and members to the whole. It was the Palladian classicism, that dominated the architectural creations of the English architects, indeed at a time, when in Germany, Belgium, France and Italy the Barocco style still celebrated its orgies. The leading master was Christopher Wren. (1632-1723).

But the architecture of the court could not entirely reject the Barocco. It required at least an approximation to this, which was carried out by the second principal master and contemporary of the preceding, John Vanbrugh (1666-1727). This approximation was indeed scarcely expressed except in the Barocco designs for interiors, in the massiveness and the increased labors for grand effects, by their nature Barocco. In the architectural treatment of forms even therein the classicism also maintained supremacy.

But the English were not opposed to classicism with an exclusive recognition of its supremacy. The revolution fought through by them had as a result toleration and free thought; as in the religious, so likewise in other intellectual and a art questions. Men desired to preserve independence in the decisions, on what they found good and appropriate. * It is no accident and not merely an artistic occurrence, that about the end of the 18 th century, men also returned to the primitive national art style, to the forms of the Gothic middle ages.

** In the art of its citizens was developed at the beginning of the 18 th century that freely conceived Queen Anne style (1702-1714), characterized by the return to simplicity and plainness, with which the later architecture of the citizens was again connected. Besides the style tendencies of Jones and of Wren, this also adopted Belgian and Dutch architectural motives, employing them in combination with brick construction in a certain easily intelligible correctness. The good solutions of the ground plan, that characterize English architecture for centuries, came to establish particularly in the Queen Anne style an intelligible and characteristic domestic architecture.*

After the deaths of the two entirely creative great masters appeared theorists, who under the influence of learned studies with more acute perceptions busied themselves with architectural expression in itself, with the style forms. In their eyes the theory of proportions was the primary requisite for every beautiful effect; something prescribed, from which one could not diverge without a great injury to the appearance of

the art work. One of the theorists (John Wood) even went so far, as to prove the theories of Villalpanda (volume 2, page 239) by further passages from the Bible. The canon established by Palladio was again esteemed as the alpha and omega of all higher art wisdom. But men no longer penetrated deeply enough into the spirit of the great masters of the Italian l late Renaissance, but understood their teachings quite superficially. Such an art strictly according to rule, as the English deduced from their works, must soon be petrified in a l lifeless formalism. Colin Campbell published the "Vitruvius Britannicus" (London, 1715-1731), so important for English a architecture. Numerous other publications treated the art as a science. On many of them French art had an undeniable influence. Certain French works were translated into English. Otherwise men chiefly busied themselves with the drawing and reproduction of the most important creations of architecture. Likewise those of the earlier native art of Inigo Jones again came into consideration and importance as a model. The strong interest taken by the public in the floating art questions was almost exclusively devoted to architecture. The minor arts, that flourished so luxuriantly at that time in France and Germany, there stand entirely in the background.

With the almost unexampled glorification of classicism the return to mediaeval forms is a particularly interesting phenomenon of English art life. But it was unavoidable. Shaftesbury already in his widely read writings had established theses, which in the following period of national culture were regarded as authoritative. Every unprejudiced observation of the Gothic monuments standing before their eyes must lead to the recognition, that also this art entirely corresponds to the generally established requirements of well graduated magnitudes, of simplicity, of subordination of the masses and members to the whole, of truth and naturalness. It only required an external impulse for its public recognition, and this came from Scotland, where the romantic sense lay deeply w within the souls of the people, and where the enthusiasm for the landscape expressed itself in the close relations of art and nature. Already in Wren's time and in his works appear

in slight beginnings of romantic tendency beside classicism. This found in a characteristic way animated approval in the broader masses of the English people, then among the leading masters. In the year 1742 was published the first work on "Gothic architecture", that gives a historical description of the Gothic style, speaks of "Gothic orders" and gives models for the treatment of clustered piers, for tracery, battlements, finials and the like. It also gives that kind of cap, t that is formed by a moulding broken around the window lintel, cut off at each side with a short horizontal addition, thus being a form, which later found such wide extension on the c continent as well.

Romantic tendencies and the love for nature also led in England to an entirely new treatment of the garden architecture. More closely than in any other country of the West, the residence there stands in direct relations to nature. The Englishman had from before a special love for living in gardens instead of walled streets. He did not build a house and then add a garden to it, as occurred in Italy and France, but he sought in the ground area available the most favorable site for the house between the already existing meadows and the groups of trees. The landscape was thus given; the house was added to it. With the Renaissance was adopted the architectural design of the garden, and in the 17 th century the Fren-
203 ch garden style (page 83 *). But in one point differ the gardens laid out in England from French models, particularly in that men took into consideration the natural form of the ground, far more than in France. Men included hills, great clumps of trees and the like in the plan, treated the great alley as a lower surface, arranged flower beds and separate divisions, which were to serve as botanical or as useful gardens. Special attention was devoted, that from definite resting places picturesque views should be afforded over important portions of the landscape. Men also sought to utilize and to enhance the beauties afforded by nature. They also soon avoided the rectangular subdivision. To the watercourses were left their natural undulating windings, and following these winding curves were also given to the garden walks. Thus grad-

gradually until about the middle of the 18 th century in England was developed an individual style, that of the "English garden", independent from the French design and in many respects directly opposed to it. It was an independent result of the strongly emphasized requirement of truth and naturalness, in the further pursuit of which men must come to the conclusion, that the arrangements produced by nature were the sole models, and that one must derive the conception of beauty of gardens from nature itself; the ideal of garden art being to be sought either in the careful fostering of natural gardens, or in new forms in imitation of such. This imitation was conceived as chiefly consisting in the combination and collection of natural landscape phenomena, somewhat as the eye of the painter sees and reproduces the beauties of nature. The English garden then presented portions, often even miniature views of English landscape, in which light green lawns on slight swellings of the ground and shady groups of trees with comparatively limited perspectives form the chief phenomena.

** In the year 1670 Lenotre (page 83) came to London, and t there laid out Kensington Gardens, which in many ways recall the design of the palace gardens at Versailles.*

The severe tendency of absolute naturalness, avoiding all artistic aims -- men even dug up dry trees and set them in blooming gardens -- about the middle of the 18 th century, when men had become acquainted with the Chinese gardens, aroused an opposition on the part of certain artists, who judged these English to be too dry, too little adapted to produce a artistic and poetic harmonies. They saw the higher ideal of garden architecture only in the combination of art and nature, in the combination of lawns and booths, clumps of trees and temples, bridges and rocks etc., after the model given by the Chinese. These now came into their designs temples, pagodas, artificial ruins, particularly those of mediaeval character, and even mosques, to which no other use was assigned, than to enrich the views in the garden and to strongly arouse the imagination. We see therein expressions of the romantic tendency worthy of consideration, which dominated the intellectual and artistic life of the succeeding period.

II. Most important Monuments.

The most prominent master of English architecture for a gen-
eration, Christopher Wren (1632-1723), was first engaged as
mathematician and professor of astronomy in Oxford, but in 1
1661 came into relations with architecture as assistant of t
the chief superintendent of buildings and thenceforth devoted
his principal interest to it. In the year 1665 he went to P
Paris, where he studied Perrault's classicism on the Louvre,
and some years later also to Italy, where he became acquaint-
ed with Bernini and followed his works on the church of S. Pe-
ter. Wren was an artist nature on a grand scale, whose stre-
ngth chiefly lay in construction. In his buildings were emp-
loyed all systems of vaulting with great certainty. They are
models in this respect. The Barocco spirit scarcely appeared
except in the powerful enhancement of the general impression
and in the preference for great expedients. The architectur-
al treatment is of particular purity and strength, with a sh-
arp drawing of the members in the sense of Palladian art.
(Figs. 179, 180). Only in the ornament are Barocco forms oc-
casionally perceptible. Wren showed himself an expressed re-
225 presentative of a scientific conception of art, that evident-
ly entirely corresponded to the English; but he was also a t
typical representative of the proud feeling of the citizens
and of the bold and energetic spirit of the English nation.

After the great fire in London in the year 1666 architectu-
ral commissions fell to Wren, as were scarcely assigned to a
any other master in the same extent and greatness. Particul-
arly fertile was his activity in Protestant church architect-
ure. He prepared nearly 100 designs for churches, more than
half of which were executed. As a convinced adherent to Pro-
testantism, he created purely churches for preaching almost
without exception, for which he prescribed many new solutions
of the ground plan. Where existing portions of buildings we-
re not to be utilized, he chose central plans as a rule, and
according as the ground area permitted, he developed in the
most diverse variations from the simple hall church to the
complicated polygonal or oval domed church and its combinati-
ons with longitudinal structures. For the form of ground pl-
an and the dimensions of the churches is responsible an Act

of the English Barliament of the year 1708, certainly originated with Wren's concurrence, according to which the plan of the church should be designed exclusively with regard to this, that the words spoken by the preacher should be clearly audible. The limits of hearing were fixed at 50 ft. in front, 30 ft. at the sides and 20 ft. to the rear. * Churches must not exceed 90 ft. in length and 60 ft. in width. In regard to t the internal arrangement Wren left to the altar its traditional position as a rule. Behind and above it a broad window admitted abundant light. The pulpit was located without a f fixed rule, most commonly at the side of the altar. It no longer appears as a fixed member in the architectural organism, but is treated as a reading desk and like furniture. The notable inclination in Protestant church architecture for the insertion of galleries, especially in Germany, rarely appears in England. In its place frequently occur moderately elevated galleries. The internal architecture is simple, chiefly intended for internal effect. Only the vaults have relief ornamentation. Variegated painting was almost entirely rejected. Also aside from some principal works and corresponding to relatively simple forms of ground plan, the facades received no richer architectural subdivision. The effect is chiefly based on the arrangement and the enclosures of the doorways and windows. On the other hand great attention was paid to the treatment of the towers. If they were designed in Renaissance forms, they consist of a square substructure comprising one or more stories, a main story erected above this a and richly treated by pilasters or columns, an attic or balustrade .nd an octagonal or round spire, that is composed of s several loggia or lantern structures placed above each other. (Figs. 181, 182). The masses are preferably treated in the series of antique forms. Wren did not restrict himself to these in the development of the towers; he returned to mediaeval models, even by preference. The greater number of the t towers built by him are kept within Gothic forms, that indeed are not always detailed in the full purity of Gothic architecture, but always exhibit a bold grandeur and assured treatment. Wren was likewise the first representative of that gene

general conception common in the second half of the 19 th century, that the architectural style should be selected and employed in accordance with the purposes of the different buildings, as the architect or owner thinks proper.

** It is to be considered here, that with the lack of distinctness in English speech, good hearing lies within narrower limits, than for example in Germany, France or Italy.*

The first church building of the master was the chapel of Pembroke college in Cambridge (1663-1665). This had a rectangular plan as a hall church with choir on the north and organ gallery on the opposite side. Among the numerous later and smaller churches the church of S. Bride in Fleet St., london, commenced in the same year (1681), and especially S. Stephen's church, Wallbrook, are themost famous. The former is a three aisled hall church (Fig. 180) with a tower (Fig. 182), with stairways in both leading to the gallery; the latter being a rectangular plan with included octagonal central area and small semicircular apse, beside which rises a tower.

A particularly grand commission was received by Wren in the building of the cathedral of S. Paul in London, that was to be erected instead of the Gothic principal church destroyed by fire. Wren was inclined to the central plan. He designed an octagonal domed area about which were arranged polygonal chapels on each side. On the principal axis, he extended this entirely symmetrical plan toward the entrance by a chapel and an open columnar portico, at the opposite side by a small semicircular apse as a choir. But this plan did not receive the approval of king Charles II, who as a zealous adherent of Catholicism required a consideration of the traditional basilican plan. The second design was executed in 1675-1710, and shows a combination of the central building with the basilica. (Fig. 183). An octagonal domed area occupies the entire width of the nave and in combination with four very short arms forms a Greek cross. Adjoining this on the main axis is a n nave composed of three bays, before which is placed a small single aisled transverse aisle and an entrance portico between facade towers; on the other side lies a choir of equal w width and likewise composed of three aisles with a polygonal

apse; at both sides of the domed area is arranged one bay of the same width as a transept. The dimensions are unusually great. In length the ground plan exceeds that of Cologne cathedral, and the height even surpasses that of the cathedral of Florence. The internal treatment (Fig. 184) exhibits the system of numerous Barocco churches; basilican plan, pier arcades with single Corinthian pilasters, horizontal returned cornice, above it being a parapet attic and windows, which intersect the vaults, the latter formed as circular domes. The facade (Fig. 179) has two storees, which -- in contradiction to the basilican structure requiring low side aisles -- are also carried around the sides at the same height, with horizontal main cornice and parapet balustrade, above which rise only the two front towers, the pediment over the facade of t the middle aisle and the transepts on the transverse axis. Extremely impressive is the treatment of the dome, that domi-
208 nates the entire building. The drum is surrounded for two-t thirds its height by an open portico with a balustrade gallery. From the crowning cornice of the upper part of the drum, constructed as a half story, rises the dome in a bold and elastic outline to the lantern, which in a peculiar way is treated as the reduced upper story of a tower. In favor of a well calculated external effect the great mathematician and theorist, who otherwise strove so strongly for truth and suitability, yielded many consequences detracting from the organism of the structure. As already indicated, the upper story of the side aisles is merely a sham architecture. The master resorted to this expedient in order to give to the colossal dome a corresponding substructure. Even this is a sham construction, that conecals the internal construction of the dome. The later consists of a rounded shell stilted over the circular form, through its vertex opening being visiole a second more strongly stilted shell ouilt in conical form. The construction is developed with strict calculation and is a splendid work in execution. The architectural details of the external and internal architecture are correct, designed in severe classicism, but on the whole are cold and tasteless. Yet the effect of the interior is imposing, and likewise that of

the external appearance. The dome is majestically enthroned with its massive substructure above the sea of houses of the colossal city. S. Paul's cathedral is the greatest church of the Protestant world. It is artistically from a single spurt, since the master was himself permitted to bring to completion his colossal work.

207 Wren's first creation in secular architecture was the Sheldon Theatre at Oxford (1663), a great hall structure intended for public assemblies, for whose plan must have served the t Theatre of Marcellus in Rome. The exterior appears as a polygonal building with rusticated arcades in the ground story, a pilaster order in the upper story, coupled windows and an attic above the principal cornice, behind which rises an octagonal dome admitting light from above the centre. Among the numerous later secular buildings of the master -- there are attributed to him 8 college halls, 35 halls for city officials, 4 palaces and more than 40 other notable structures -- a are to be mentioned the Library of Trinity College at Cambridge (1676-1692), a wing treated in powerful and nobly handced forms of the Italian Renaissance, as well as the rebuilding of the eastern portion of Hampton Court, on which he produced a dignified effect in brick architecture with enclosures of cut stone.(Fig. 185). As the chief undertaking of Wren in t the domain of secular architecture must rank his part on the Hospital at Greenwich, one of the greatest architectural works in the country. The extended plan spreads symmetrically at both sides from two courts lying one behind the other, and whose middle line coincides with the principal axis. The front and larger court has an approximately square area; it is open on the facade toward the Thames. (Fig. 186). At the middle of the inner side a broad flight of steps leads to the second court forming a terrace and likewise open at the rear s side, narrow between two imposing domed buildings but very d deep. At the two longer sides this is flanked by enclosed b buildings only at the front and rear angles. The connection between these angle buildings is formed by colonnades. Through them one passes to another rectangular court, each of which is enclosed by three wings grouped in U-form. The outli-

outline of the general plan forms a rectangle of vast dimensions. The structures were begun by John Webb in the year 1667 as a royal palace for Charles II, but rebuilt as a hospital after the year 1694. The general arrangement of the buildings must be attributed to Wren, who executed the dominating portions of the structres, the two domed buildings and t the colonnades.

Like his great predecessor Jones, Wren was an excellent architect in regard to the suitability of his solutions of the ground plan. His creations are distinguished by well calculated form and grouping of rooms, convenient connection and a accessability with abundant access of air and light. In his conception of art he does not, like Jones, stand directly in the paths designated by Palladio; he rather inclines toward the elder Mansart. His grandeur, energy and freshness, his sound understanding of men and his sovereign power over space and construction ensure him a place among the most important masters of postmediaeval architecture.

John Vanbrugh (1666-1726), a contemporary of Wren and the most esteemed artist besides him, the representative of that art tendency, that placed itself in the service of the absolute princes and of the unscrupulous court life of the king a and the nobility, was entirely a Barocco master of great gifts, cheerful, bold and graceful in his architecture, but too little severe with himself, for his works to be as well considered, carefully worked out and harmoniously completed as t those of Wren. He soon found himself in violent contradiction with the spirit of the English citizen class, striving for truth and solidity. His buildings show externally a pompous grandeur. They have a colossal extent, frequently at the cost of the suitability and convenience of the solution of the ground plan. For the later works is notable a determining i influence of French chateau plan on the arrangement of the sequence of rooms and the introduction of great galleries. the architectural treatment in general as well as in detail misses the refined feeling for the effect of the masses, of the proportions of the different parts to eamh other, of the members and the architectural work. In the treatment of the

forms with all other freedom, there reacts that classicism, with which we have become acquainted in its Dutch native la-
211 nd. In contrast to the vainglorious external architecture, which as a rule far exceeds the proportions given by the approval of the building, the internal art recedes. It appears neglected and is chiefly calculated to express hollow grandeur and repellent dignity.

Vanbrugh's first and also indeed his best work is the chateau of Howard Castle in Yorkshire, built in 1702-1726 for the counts of Carlisle. The ground plan is kept in very animated outlines and consists of an unusually elongated garden wing at right angles to the principal axis, which contains the usual series of rooms (perspective) after the model of Versailles. Before it lies the comparatively small middle building as the main structure, in which is found a circular domed hall on the principal axis with stairways at each side leading to the upper story. Narrow passages connect the middle building with the two wings, that form between them the great court of honor, open in front and rounded at the angles by arched galleries. The main building has a columnar order comprising two stories with round-arched windows, and above it extends a dome on a high drum. (Fig. 187). The side wings enclosing the court of honor approximate in their rustication to the French architecture of the Rococo period. Otherwise the form treatment remains within a simplicity recalling Dutch art. In the interior predominates a severe architectural subdivision. In the ornament appears the shell work in combination with a crisp naturalism in a usually dry modeling. The effect of the whole is based on the vast dimensions and the loose grouping of the architectural masses, that have in these conditions but few contrary examples. Vanbrugh was also
212 engaged on the Hospital of Greenwich. But there but few parts of buildings, which can be referred to his authorship. As his chief work generally passes palace Blenheim near Oxford, that the English nation had built for the duke of Marlborough in gratitude for his famous deeds and in memory of his victory of Blenheim (Blindheim near Höchstädt in Bavaria, 1704), obtained in combination with prince Eugene over the Bavarians

and the French. The ground plan has several recollections of Versailles; a great court of honor enclosed in front by colonnades and diminished toward the rear by projections, in each wing being an internal court with the housekeeping rooms on the outside. The wings are connected with the master's residence by an open gallery. This follows the French model in the arrangement of the rooms. The architecture (Fig. 188) d does not rise to an effect corresponding to the grandeur of the plan. The accents are wrongly placed and are too little balanced. The architect lavished abundant wealth on the decorations, where simplicity should have been, but on the contrary is plain, where a rich and powerful treatment should be expected. The forms of details are frequently neglected. T The highest parts of the corner pavilions are architectural productions, that would make the architect trained in a classical sense shake his head. Likewise the internal architecture (Fig. 189) is scarcely satisfactory in regard to the organic development of the members in accordance with the purpose of the rooms and their proportions, in spite of the spaciousness and the expenditure for magnificence. The artistic importance of the palace lies in the picturesque grouping of the architectural masses, in the charming placing of these in the landscape, and the talented manner in which the master b brought them into connection with the palace by ornamental a architecture, bridges, circular temples, statues and vases.

A school pursuing his course farther did not adhere to Vanbrugh. Wren's style of architecture had a greater suitability to English needs. And thus this master had the satisfaction of seeing his art continued by a great number of pupils. Among them Nicholas Hawksmoor (died 1735) stood in the first rank. This architect was likewise much employed, inherited Wren's office as chief architect of the capital, and built t the extensive chateau of Easton Newton in Northamptonshire (1713), which in grandeur of plan is hardly inferior to Vanbrugh's works.

While on the English soil of the island kingdom the three masters mentioned, and especially the two last, did not remain entirely opposed to the Barocco style, the school of Jones

was continued in the northern part, in Scotland. His most i important follower there was William Bruce (died 1710), whose chief work, the chateau of Hopetoun House (1698-1702), repeats on a great scale the Palladian motive of Villa Rotunda. (Volume 2, page 230). William Adam (died 1748) later developed an extremely rich activity. His buildings are indeed inferior in greatness of conception to the contemporary works of English masters, but excel them by the richer treatment. He executed them in a Renaissance more nearly approximating the art style of Wren, but also was a restorer of Gothic, which is important in the history of art. The chateau of Douglas Castle erected by him is entirely executed in the native form of mediaeval castle designs.

In England the theorists succeeding the great freely creative masters (page 201) introduced a new epoch of the most severe classicism. In their works James Gibbs (1674-1754) stands in the first place. He was born in Scotland, made his s studies in Italy, indeed in Milan at the school following Juvara (page 38). His forst work, the church of S. Mary le Strand in London (1717), is a one story design with a choir apse, a semicircular open portico before the facade, a rich two story facade architecture extending around it, and an elegant tower, that rising above the principal facade in a spirited manner, passes from the rectangular base into the square. His second and more important church of S. Martin-in-the-Fields in London (1721-1726) is core strikingly characteristic of t the style of the master, and on account of its refined architecture obtained importance as a model. It has one facade t tower consisting of two pilaster stories and an intermediate story for the clock, and a hexastyle Corinthian portico of n noble proportions recalling the Superga near Turin. (Page 38). The antique temple facade according to the scheme astablished by Palladio was almost generally the rule for this time, not only for churches, but also for secular buildings. Gibbs was also the creator of the Radcliffe Library in Oxford (1737-1747), a peculiar, well proportioned and dignified circular building. (Fig. 190). On an octagonal rusticated substructure stands a columnar order of three-quarter Corinthian columns

comprising a principal and an intermediate story, which are set in pairs, with a massive cornice and crowning balustrade. Behind this rises over the central room in an elegant curve a dome with lantern. The lower story is not entirely free from French echoes; but the upper structure has powerful Palladian Renaissance forms. In the latter is also kept the two story Senate House at Cambridge (1730), an entirely symmetrical plan, with a projection crowned by a pediment at the middle of the facade, which is subdivided by a columnar order. In the happy adaptation of his works to the given conditions, Gibbs proves himself to be the most gifted follower of Wren.

Colin Campbell (died 1729) from Scotland, frequently termed "Vitruvius Britannicus", has become known less by his architectural than by his literary activity (page 201). He celebrated Palladio as the highest master of true art, but otherwise was a zealous admirer of Inigo Jones, into whose paths he endeavored to again lead English architecture. Of his buildings, the chateau of Houghton hall in Norfolk, 1722-1735, is t the best work. But the master was not permitted to entirely execute his noble design, a severe creation in the sense of Palladio.

Christopher Wren the Younger, the son of the previously mentioned great master, appeared especially in the treatment of the ground plan. His Marlborough House in London (1710) permits the recognition of the types of the plans of Vanbrugh's chateaus and perhaps forms a stage preliminary to them.

As a master with refined feeling also George Dance the Elder (1695-1768) was esteemed, the creator of the imposing Mansion House in London (1739-1753), which the spirit of the high Renaissance appears to influence with a clarification and heightening by classistic grandeur. The facade (Fig. 191) h has a Corinthian order standing on a low base and extending through two stories, a hexastyle portico with an attic and b balustrade parapet of extraordinarily noble design.

The severest among the theorists also belonging to the first half of the 18 th century in regard to a purely scientific conception of architecture was William Kent (1685-1748). He also became known as a painter and particularly as the primary

creator of that English system of gardening, that desires in the garden nothing more than nature will give (page 203). Kent established a simple and noble pose of architectural works as the first requirement. He required severe moderation with intentional rejection of all superfluous accessories. In general he sought effect less in the members than in the surfaces. To the facades, besides the colomnar porticos, he gave only carefully drawn cornices and modest enclosures for t the windows. In the interior he preferred for the ornament of the walls recessed relief panels and niches with statues. At the transition from the walls to the ceiling he rejected the transition cavetto. Besides the coffered ceiling, whose panels he treated entirely with egg and leaf mouldings, rosettes and the like, he also employed beam ceilings. In the o ornament acanthus scrolls, laurel branches and leaves in combination with griffins, vases, masks and emblems bear the same character, that appeared later in the Empire style. In t this mode was executed under Kent's charge the internal architecture of Campbell's Houghton Hall. His best unified and completed work is chateau Holkam (Norfolk), the principal work of the matured English-Palladian classicism. The plan differs from the usual one in chateaus of this time, especially by the arrangement become common after French models, in a m manner particularly characterizing English peculiarities. The living rooms are there placed in pavilions, which are far separated as independenp buildings and only connected at the angles by narrow galleries like corridors with the main building, containing the proper festal and social apartments (Fig. 198). The reason for this is that in England it was desired to bring the living rooms into the closest possible connection with the garden, to have views of this on all sides. On the other hand the social requirements differed there from those in France. In France the social life and customs were dominated by the mistress, and her inclination for familiar and intimate comfort, but in England by the master, who even at their assemblies and feasts occupied himself with high politics and the discussion of important questions of the day, and required rooms for assemblages, which stood in no nearer

relations to those intended for family use. This arrangement of the ground plan enjoyed particular favor in the great English buildings of the 18 th century, it is typical for the house plans published in Vitruvius Britannicus (page 201), in which the connecting galleries indeed mostly appear as quadrant-shaped colonnades. They presented for the structure the advantage foreseen in the plan, the allowing of the main building to appear more majestic. The facade of chateau Holkham is distinguished by a colossal hexastyle portico on the principal axis, but it otherwise has a very plan treatment of the surfaces. As a second principal work of the master is to be mentioned the widely extended and treated with animation, palace of Hoseguards in Whitehall, whose facade rejects columns and is satisfied with ashlar work and round arches in the ground story, with the same in the principal story of the middle and side projections. (Fig. 193). Kent, in his conception of art and in his entire external and internal architecture, was the direct precursor of the later Neo-Classicism.

7. Architecture in the Period of the Barocco and Rococo Styles in Denmark, Sweden and Norway.

In DENMARK in the second half of the 17 th, and the first q quarter of the 18 th century, on account of the unfortunate participation of the Danes in the thirty years' war, producing wars with Sweden, the political and internal conditions w were not favorable for a further development of architecture, that attained such a high stage in the Renaissance. First under Christian VI (1730-1746) and Frederic V (1746-1766), due on the one hand to the strictly neutral position of these two monarchs in regard to foreign events, on the other to the execution of beneficial reforms in the entire administration a and the effective fostering of commerce and industries, was introduced an advance, which in the second half of the 18 th century caused Denmark to flourish greatly.

During this time the Danish court and intellectual life was principally under the influence of north Germany, and accordingly the development of D.nish architecture, even if French and Italian influences sometimes appeared. The architectural activity itself chiefly lay in the hands of native masters.

The count and the entire population were converted to Protestantism and saw the most important architectural problem f first in the erection of churches, that should correspond to the reformed church. In the new and flourishing capital of Copenhagen was erected in 1637-1656 the church of the Trinity, for which king Christian IV himself prepared the design. It is a three aisled vaulted hall church on a rectangular ground plan with the angles cut off at one end, and with a massive round tower attached at the entrance end (this was originally intended for astronomical observations). The plan of the church as a nave, the buttresses and even the position of the pulpit on a middle pier still allows the mediaeval arrangement to be visible. A free creation, exclusively considering the needs of Protestant worship, is the church of the Saviour at Copenhagen, built in 1682-1694 by Lambert von Haven, a central structure with a square principal room, that is enlarged on each side by a rectangular exedra. At the intersections of the lines of its walls stand four square piers, that support the cross vaults constructed of wood. In the entrance e

exedra is built a square tower, that in the top story passes
into an octagon, and is crowned by a steep circular spire, ar-
ound which an external free stairway is carried like a ramp
to the apex, 295.8 ft. high. The construction is with brick-
work in very simple Barocco forms. The principal work of Dan-
ish church architecture of the Barocco period is the Frederic
church (marble) in nopenbagen. It was designed and bemun in
1749 by Nicholas Matthew Eigtved (1701-1754; page 220), direc-
tor of the Copenhagen Art Academy, was continued in 1795 by t
the architect Nicholas Henry Jardin (1720-1799), called from
France. The structure however proved too large and too costly
for the small country. In the year 1770 it was entirely drop-
ped, but was again taken up a century later, and after a simp-
lification of the plans, was completed in 1878-1894 by F. Mel-
dahl. The ground plan (Fig. 194) forms a circular central ro-
om with a diameter measuring 103.0 ft. and surrounded by 12
wide piers, a very narrow outer aisle and two rectangular pro-
jections on the main axis as porticos, with stairways and sub-
ordinate rooms. On the one story structure rests the drum wi-
th the massive dome 262.5 ft. high, dominating afar the view
of the city. This is constructed after the model of the dome
of S. Peter's at Rome, but in its external appearance it loads
220 very heavily the comparatively small substructure. (Fig. 195).
The architecture remains within the forms of a classistic cla-
rified Barocco. The church is one of the greatest buildings
for Protestant worship.

The more important secular structures exclusively belong to
the 18 th century. The small chateau of Fredensborg erected
in 1720-1724 in memory of the Danish-Swedish peace concluded
shortly before, owes its fame more to the grand park, whose
wide and great alley is esteemed as particularly worth seeing.
The Royal palace of Amalienborg was built about 1750 after the
plans of the already mentioned Eigtved, who had been in Vienna,
Munich and Rome, had worked under Pöppelmann in Warsay and Dr-
esden (pages 174, 227), and since 1736 had settled in his nat-
ive land of Denmark. The Amalienborg consists of four separa-
te palaces, treated entirely alike and originally intended as
residences for the nobility, that are symmetrically grouped a
around the Amalien Place. The palaces have a rectangular gro-

ground form with wide projections at the middle. (Fig. 196). The ground story is rusticated, the upper story has coupled I Ionic columns on the projection and pilasters on the receding parts, the whole with a form treatment, that with a Barocco keynote holds the mean between the academic Palladian classicism of the German and English conceptions. (Figs. 260 on page 302). The most important work of Danish Barocco architecture, the great palace of Frederiksborg erected in 1732-1746 under Christian VI, fell a sacrifice to a fire in 1794. It was then restored at the beginning of the 19 th century by Chr. Fred. Hansen, but its principal parts were destroyed in the year 1884 by a second fire. The rebuilding and restoration of the palace (after the plans of Thorvald Jergensen) is a work of t the most recent time.

NORWAY even appears in its political and intellectual dependence upon Denmark, lasting through the entire 18 th century (volume 2, page 320), to have retained much individuality, particularly to have gone further into the special requirements 22/for Protestant church architecture. Of the two wooden churches erected in the 17 th century at Holmestrand and Arendal, t the ground plan of the former is composed of three rectangular wings joined at an angle of 120°, but at Arendal of a regular octagon with rising rows of seats arranged like an amphitheatre beneath the galleries. The church of the Saviour at Christiana erected in 1695-1699 by J. Wiggers as a brick structure, is a single aisled cross church with widely projecting arms, a projecting square main tower at the entrance and a small polygonal stairway tower at the right hand angle of the facade. The exterior was restored in mediaeval forms in 1848 by the addition of plain cut stone architecture (granite). For the New church at Bergen (1700-1702) likewise constructed in stone, the T-shaped ground plan was chosen (see ground plan C in Fig. 121), with the addition of a square tower at the middle of the longer side of the principal wing. The very simple exterior recalls the German-Huguenot buildings, and by the heavy mansard roofs built over the wings rather appears as a hall structure, but does not lack the earnest character of a church.

The house architecture adhered to the traditional wooden con-

construction, whose warmth retaining material was prepared with great structural certainty in the mountainous country, exposed to the rough and violent winds from the North Sea, and it proved itself as particularly suitable. The residences of the nobles are a series of detached structures, grouped around a great court; among them the dwelling proper and the chapel, f frequently constructed of stone, had a preferred location and treatment. Smaller plans were frequently limited to three buildings; dwelling, kitchen and granary. The dwellings are rectangular one story buildings with gables at the ends. They e they enclose a hall extending nearly the entire length and the entire width and height, a small lobby, chambers at the rear end and a small attic beneath the roof. The hall is furnished with fireplace and smoke head and serves as dining room, also as a kitchen in the simpler citizens' and peasants' houses. For the construction the methods already common since the early middle ages were employed together, logs, posts and half timber work (volume 2, page 43; Fig. 197). In the wood carvings on the portals, windows, gable boards and on the house utensils, after the beginning of the 17 th century appears a permeation of Renaissance forms (acanthus leaves and scrolls), and in the 18 th century also of Barocco forms, which combine with the native northern linear ornament into a very charming decorative work.

SWEDEN. The thirty years' war had brought Sweden to a highly regarded position by the powerful participation of Gustavus Adolphus in the destinies of the people of middle Europe. Their state entered on its magnificent Carlovingian epoch. The famous deeds in war were followed, carried on by an impulsive national feeling, by just as animated as productive work for the needs of peaceful civilization. A series of culture localities for the arts and sciences were founded. Architectural activity assumed a rich development. Great chateaus, in which the nobility competed with the royal family, give evidence of the high stress of the energetic spirit of the time. But this prosperity was only of brief duration. Internal feuds between the official and feudal nobility had an injurious influence u upon the carrying on of the grandly planned buildings. At the

end of the century broke out the so-called northern war, that lessened interest in the artistic development of life and severely shattered the general prosperity. In the second quarter of the 18 th century the country gradually recovered in a longer period of peace, and therefore toward the end of the epoch architectural activity made a renewed advance.

The Swedish Barocco architecture has a predominating courtly character. It was in the hands of a few important masters, w who had chiefly educated themselves by the study of the literature and of buildings in foreign lands. According as the impressions thus obtained preponderated, was determined the character of the different buildings. Therefore the development of the style was completed in entire dependence on foreign influences. Some types were formed, neither in the plans of palaces and churches, nor in the external or internal treatment. The first Barocco master was Jean de Lavallee (1620-1696), the son of the French architect Simon de Lavalle (died 1642), who had been settled in Sweden since 1637. After the death of his father, the younger Lavallee with support from the state undertook (after 1646) a study tour of several years to Italy, France and also probably to Holland. He worked in the sense of Palladio, yet with a leaning toward the Dutch conception of t the teaching of that master. Beside him worked the more important Nicodemus Tessin from Stralsund (1615-1681). He likewise after 1651 made a journey to Germany and Italy, and it is assumed, returned through France and Holland to Sweden. In t the year 1653 began his activity there, thereby introducing for Sweden a period of grand architectural construction. Tessin was the builder of numerous chateaus and city palaces. He had at command a very happy creative power and a finely developed feeling for pleasing proportions. His buildings have very good solutions of the ground plans, and in the structure clearness and dignified general appearance with all their richness. He was an adherent of the Palladian late Renaissance; but his style frequently recalls that of the elder Mansart in France. After his death his son Nicodemus Tessin the Younger (1654-1728) continued his work. He had also studied (from 1673-1680) in Italy, chiefly in Rome, but later also in France

and England. He proved himself a learned artist, who took as a model the Italian and particularly the Roman series of forms of the school of Vignola. The artistic inheritance of Tessin was transmitted to his son and successor in office, Count * Carl Gustav Tessin (1695-1771), but he entered the diplomatic service in 1741, and later as statesman and patron of the arts and sciences obtained much merit for Sweden. In his place was appointed his artistic colleague Baron Carl von Horleman (1700-1753) as the chief superintendent of buildings. Like his immediate predecessor, he chiefly worked in the sense of a transfer of the French Renaissance to Swedish soil.

** Nicodemus Tessin the Younger was ennobled as count and appointed chief marshal in 1726.*

Among the monuments we first have to mention two churches, and indeed as the earliest the Catharine church at Stockholm (1656-1870), built by Jean de Lavallee. It is the first central church of Sweden, consisting of a great central square, from which project four nearly square wings of equal width, w with small and likewise square additions in the angles of the Greek cross thus formed. The interior has a very spacious effect. The cross arms are cowered by stone vaults; the octagonal wooden dome rests on the massive piers of the central area, over whose angles rise small towers like finials. (Fig. 198). The mighty and well subdivided structure forms a dominating b building in the view of the city of Stockholm. The second great church structure in Sweden is the Cathedral church at Calmar, erected 1660-1690 by Nicodemus Tessin the Elder. The ground plan is here also symmetrically arranged. About a great central square are placed four short arms in the form of a Greek cross, of which those lying on the principal axis are each extended by one bay with a semicircular apse, at one end for the choir and at the other for the vestibule. In each angle of the cross arms stands a low square tower. The plan thus c combines in a certain way the central building with the basilican system. The wall surfaces in the interior are subdivided by double Ionic pilasters, on the exterior by Tuscan pilasters in the lower, and Ionic pilasters in the upper story, in a severe design. As a creation of an interior the church makes an imposing impression; on the exterior the purpose of the struct-

structure as a church indeed is less clearly expressed.

In secular architecture chateau Skokloster near Upsala, built by field marshal Gustav Wrangel, known for his part in the thirty years' war, still stands under the strong influence of the Renaissance. It is planned as an enclosed square of four three and a half story wings grouped around a small court with polygonal angle towers. The high external walls have no vertical subdivision, aside from the very slight middle projections. the interior contains a magnificent three aisled vestibule with Ionic marble columns and a series of noteworthy rooms, in which in part still appear the strongly projecting mantles and the heavy stucco ceilings beculiar to Swedish architecture, but in part also developed Barocco forms occur. Evidently according to the sketches by the owner, the plan was designed by Lavallee and revised by the elder Tessin. Further advanced is Lavallee's best secular work, palace Bonde at Stockholm (completed 1667), an I-shaped plan with two story main building terminating at both sides in pavilions, from which project one s story wings like galleries. The external architecture is executed entirely in rustication, and it still bears the tendency of the Frenc.Dutch late Renaissance. The building is now utilized as a city hall and is greatly changed.

Swedish Barocco architecture reached its climax in the royal palaces. Among these the queen's palace of Drottningholm near Stockholm, erected 1662-1683 by Nicodemus Tessin the Elder and his son, has the same importance for Sweden as Versailles for France. In laying out the plan a great extent in length is avoided. To the principal building rising in three stories above an elongated rectangle is attached at each angle a strongly projecting pavilionl but limited to two stories. Before each end is placed an approximately square court, that is enclosed by three wings of the same height as the angle pavilions. The ends of the longitudinal axis are accented by circular pavilions. The exterior (Fig. 199) is very simply treated. Its dignified effect is due to the happy proportions of the w whole and the animated outline. The palace has an imposing a and magnificent stairway occupying nearly the fourth part of the main building. The internal architecture reaches its cli-

climax in the royal chamber, that is entirely treated in the developed French Barocco style of Louis XIV. (Fig. 200). Far grander in plan and in the entire architectural treatment is the palace in Stockholm erected after 1697 by Nicolas Tessin the Younger. The ground plan consists of four wings enclosing a great square court. The two principal facades (on the north and south) are extended at both sides by low wings. These form at the east side a terrace with outlook on the Sea, at the west side being an external court, that is terminated by two porticos in a semecircular form. The architecture is built in three and a half stories, indeed without vertical subdivision on the northern facade, but on the east and west facades with wide central projections containing nine axes. That on the eastern wing shows a great Corinthian pilaster order on a high rusticated lower story, on the contrary on the west being Tuscan rusticated columns in the lower, hermes in the middle, and clustered corinthian pilasters in the upper story. The middle projection has but three stories; the intermediate story was there included in the height of the ground story. Before the south facade is a middle projection like a triumphal arch with five axes with Corinthian half columns, round arched portal at the centre, niches for statues in the other intercolumniations, and a crowning attic with trophies. Here the influence of the Roman series of forms becomes especially evident. Also the other architecture on the exterior, as well as in the internal apartments is dominated by it and is intended for assemblages, even if as particularly on the western facade, French and German tendencies cannot be denied. But otherwise the internal decorations have the expressed style of contemporary French art, that was transferred under the lead of the later palace architect, Carl Gustav Tessin, trained in Paris, and Carl von Horleman (after 1741), by an artist colony called from France to Sweden in 1728. The completion of the palace externally occurred about 1741, of the interior only about 1777.

The true Rococo found entrance into Swedish art only in the interiors and the minor arts. Of Rococo buildings only to be mentioned is the little chateau of Kina (China), built in the

park of Drottningholm in 1751 and rebuilt after 1763, which s should afford for the royal family a resting place after the disturbing court ceremonial in simpler surroundings, particularly for a stay in the free nature (like so many little country chateaus of that time nemed Hermitage, Monrepos, Solitude, and the like). It has a two story middle building with two o one story wings projecting in horseshoe form and terminating in pavilions. The name of this small chateau indicates the e enthusiasm of that time for everything Chinese, which also appears to superfluity in the details of the external building and in the internal decoration, particularly in the painted p panels. The usually simply treated Rococo ornament recalls in its crisp naturalism that of palace Sansouci near Potsdam. the architect of the little chateau of Kina, K. F. Adelcrantz, passes in Sweden as already at that time a direct champion of Neo-Classicism. (Page 305).

8. Offshoots of the Barocco style in eastern Europe and in America.

In the kingdom of POLAND, as formerly in the period of the Renaissance (volume 2, page 316), so likewise in that of the Barocco style, Italian art first found entrance. At Warsaw masters from the school of Bologna built the church od S. Francis (completed 1733), whose low facade towers show the restraint on their creator in respect to development in height, and likewise the church of S. Joseph (completed 1782), on which w was employed the motive from upper Italy of the construction of walls on arches between bent columns in a crisp Barocco style. In Cracow after 1683 the court architect Agostino Locci erected the great Capuchin church as a memorial church in celebration of the victory of the Poles over the Turks, and dedicated to the Transfiguration of Christ, which however is of but slight artistic importance.

To the secular buildings of Poland is peculiar the rectangular ground plan with strong projections at the angles in form of towers. The most important work of the period is the chateau Wilanow near Warsaw erected for king Sobieski (1683-1694). Likewise here an Italian master, Giuseppe Belotti, had charge. The ground plan received a rectangular middle building by the direct arrangement of the king, which at both sides is connected with two wings projecting at right angles by narrow gallery structures attached to the facade. Thus it has a form of plan, such as common in the English country seats of the 18 th century. (Page 216). The relatively small principal building with nine axes has a high ground and a low upper story; over the middle projection with three axes and subdivided by a colossal order of Composite three quarter columns is built a high upper story. The broad and greater side projections with two axes exhibit Composite pilaster orders. The two recessed parts are each limited to one axis. After 1696 at each side of the main building were inserted tower-like connecting buildings between this and the side wings. About this time the German master Schlüter was engaged on the principal facade (page 194), whose influence is recognized in the rich sculptured ornament. (Fig. 201). The design for the garden facade was evidently due to M. D. Pöppelmann, the court architect of August-

Augustus the Strong (page 174). The interior was decorated i in the Italian or German Barocco forms represented by the leading and executing artists.

Likewise into RUSSIA the Barocco style found admission. Peter the Great (1689-1725), after the precedent of the princes of western Europe, also desired to have an imperial palace corresponding to his luxurious court, to the splendor of the throne of an emperor of all Russia. He founded S. Petersburg in 1703, and prepared a fostering place in the now existing capital of western culture and art, for which he had obtained a s special preference in his journeys through Germany, Holland a and England. In the year 1715, he commenced the chateau of P Peterhof, after the plans of the French architect Jean Paul A Alexander Leblond (page 75), which was subdivided by a colossal Ionic order comprising the ground and upper stories, and w was surrounded by a grand garden design. Later he added to t the chateau several other structures. The empress Anna after 1732 had erected the widely extended Winter palace, richly subdivided by projections and columns, that was only completed thirty years later, under the reign of the empress Catherine II. In 1837 it burned in great part, and was then rebuilt. As workmen were employed in S. Petersburg Italians, French and Germans. Among the Italians were especially prominent the two Carlo Rastrellis, father (died 1744) and son (died 1771), as architects of the Winter palace and of the Smolnoy monastery near S. Petersburg. (Fig. 202). For the church of this monastery (after 1738) the master allowed himself to be guided by Russian influences, when he permitted for the massive two story substructure, treated in a manner entirely unusual for Italian views, a lofty dome with lantern to rise, adjoined by four diagonally placed slender towers crowned by bulbous domes. The younger Rastrelli was also the architect of the great imperial palace of Zarskeio-Selo, whose external architecture is (Fig. 203) similar to that of the Winter palace, while the interior exhibits early Rococo forms like that. Likewise in Moscow and in other important Russian cities the inherited Byzantine-Russian architectural style could no longer oppose the f form series penetrating from the west in an ever widening stream.

How mightily the Barocco forms developed in the countries of western Europe also pressed forward into the eastern may be s seen, since even the mosques originating in the 18 th century in Constantinople were unable to entirely escape its influence.

From Europe the Barocco style was carried to AMERICA by the colonial activity of the western countries. Soon after the founding of the Spanish colonies in Mexico and South America, architects settled there at the commend of, or favored by monarchs greatly interested in the prosperity of their new possessions, laid out cities and erected in them churches, monasteries and government buildings, in which they followed nearly a all changes in the architecture of their native countries. Already after 1573 Francisco Becerra had built a great number of church structures, among them being the cathedrals of the episcopal cities of Lima and Cuzco in Peru, that of Los Angeles in California and the Dominican churches in Mexico. On the broad facades with the stately flanking towers appears the style of the elder Herrera (volume 2, page 243) and later the capricious Churriguerism. (Page 44). The principal work of Spanish-American architecture is the cathedral of Mexico, begun in 1573 but only completed in 1791. It is a grand five aisled basilican plan with high transverse aisle, a low dome on a short drum over the crossing, and a massive facade with two towers, on which the massive effect of the solid lower stories of the towers and side aisles animated by few windows, upon the general appearance is counterbalanced by the extremely rich treatment of the recessed portals and the superstructures of the towers.

Of North America, the domains open to colonization north of the Spanish-Mexican possessions, during the first half of the 17 th century were in great part under British, but also in part under Dutch and French sovereignty. In the year 1667 Holland was compelled to surrender its territory to England, and later after several wars carried on with the French, their domain also came into English possession. (1763). Therefore aside from some remaining works of the Dutch and the French periods, the architecture of North America entirely exhibits the style of English Palladian art. By the strongly churchly character of the new English colonies compelled by the rule of

Puritanism, the centre of gravity of architectural activity 1 lay in church architecture. From the 18 th century has remained a great number of churches, that permit the influence of the school of Wren (page 204) to be recognized. The church of S. Michael at Charleston (about 1750) appears as directly influenced in plan and structure by the London church of S. Martin-in-the-Fields (page 214). The same stamp is borne by the somewhat later church of S. Paul in New York. Likewise a transplanting of British architecture to the soil of the colonies is shown by a series of stately country mansions, both in ground plan as well as in elevation and internal treatment.

II. ARCHITECTURE OF THE NEO-CLASSICISM.

General Basis.

In the Rococo the form series derived from the Renaissance had been carried to its extremest consequences. To the immense expenditure of power naturally succeeded relaxation and repose. The style of decoration of the extremely refined courtly style must lead to satiation with this luxuriant, affected art, degenerated into frivolity like the society of the time, in the sequence of which gradually became unavoidable a demand for simpler and stronger forms, a return from the trifling life dominated by deception and show to truth and nature. Even the art of the people had lost all restraint by the misunderstood and unskilful imitation of the coutlty style of architecture, particularly by the thoughtless transfer of the Rococo decoration intended for internal architecture to the facades, and produced unnatural works in stucco forms diverted to stone, which must have called forth the strongest opposition from the independent artists. Thus already in the second ouarter of t the 18 th century, especially among the artists sprung from the people, there set in a movement directed against the luxurious style of the residences of the princes, that first impelled toward quieter forms and to a return to the conception of the early Barocco, and then ever more decidedly to take up Classicism again. *

"Classicism" is derived from the Latin "Classici", the designation introduced in ancient Rome for the first wealthy class; after the 2 nd century A. D. employed for authors of the first rank, and in the Renaissance for the literature and art of the Greeks and Romans, held as models by the understanding of that time. In the modern period by Classicism is generally understood the adherence to the classic, i.e., to the scientifically investigated form series of Grecian and Roman antiquity, directly taken as a model.

These standards were not even entirely lost in the period of the Barocco and of the Rococo. Just in France, the native land of the Rococo, in the sense in which it was adopted and developed by Palladio in his time, Classicism had always continued in use, and was always taken as a comparison and scale,

when great architecturel projects were under consideration. (Rage 69). Repeatedly among the learned were earnest discussions, as to the manner in which the great principles derived from the antique were to be taken now as fixed standards, and whether the modern architects could excel them. If one examines the written words of the French architects of the first half of the 18 th century, he will thus obtain the impression, that the classical principles of form must have been taken as a basis for their entire activity. But in that time these only guided in the treatment of the facade; in the interior decoration was cherished the most unrestrained Rococo. Thus in their artistic opinions became strikingly apparent two tendencies far divergent by nature, and so it was no wonder, that t the one aiming at the antique gained in the same proportion as the other lost its force.

The departure from the Rococo was accelerated in France during the reign of Louis XV by internal conditions and by the m miserable results of external politics. By the continued and worthless change of the life of the king, by the lack of economy and the extravagance in the state finances, the ruined condition of the nobility and of the officials, and particularly by the unfortunate results of the wars (wars of the Polish and Austrian successions and the seven years' war), the importance of the royal court, the power of the state and the aristocracy had sunk most deeply. The representatives of the people depressed by the powerful king Louis XIV commenced to resist the subjection and the continual pressure of new taxes, and to think of their rights. The people drew comparisons with the internal conditions of England, where the Parliament had made great acquisitions in regard to its position as the government of the kingdom, and also with those of the free state of the Netherlands, that enjoyed a purely democratic government. Men looked upward to the development of human rights, and then appeared the antique in a magnificent light, to which already f for a long time the neuw science and literature had referred in inspired descriptions. The increasing interest in former Roman and Grecian antiquity strengthened the tendency toward the conditions of that period, and against the luxurious and

over-excited style of the princes' residences, in which the p people saw merely a reflection of aimlessness and the passions of the court life of the princes and of the great of that time, against those places on which the taxes wrung from the people were squandered beyond measure. From the people, in which had been preserved the best intellectual and habitual powers, came the reaction against the existing, against the art of the court.

But even the ruling class could not evade its influence. Literature had gradually taken a classical direction. The theatre, to which the then important world assigned high importance, required for the representation of the classical drama suitable surroundings, more spacious interiors, grand forms suited to the purpose of the play, such as the scrolled Rococo was unable to present. The views of antique columnar streets, columnar gateways and porticos represented in the theatres receided the most animated approval; they substantially influenced the change of taste in art.

230 At the end of the movement already strong against the Rococo for forty years, an event at last came to its assistance, that was of the highest interest to the entire cultured world, the discovery of Pompeii in the year 1748. Already in the year 1711 had Herculaneum been discovered. Yet whatever was brought to light from the greatly runied city extended but slightly beyond the frontiers of Italy. But the intelligence of the d discovery of an antique city south of Vesuvius passed over the entire earth and occupied in great measure the interest of the learned. With real enthusiasm the statements of the finds made in the excavations were followed; numerous scientific explanations and investigations indicated the high importance of the antique and its infinite superiority over the art entirely degenerated into hollow phrases and scrolls. For artists and men learned in the arts the classical soil of antiquity again formed the aim of their longing. From nearly all lands men made pilgrimages to Rome and the Vesuvian cities, and also eastward to Greece and to the ruins of Hellenistic art in Syria. The different works on ancient monuments then published produced an extraordinary extension of the horizon. Of the French publications, that of Caylus, Recueil d(Antiquites (1752-1767),

and of the Italian, Piranesi's works on Roman ruins (Vedute di Roma) 1748, and "Le Antichita Romane", 1756, stand in the foreground. England, the home of northern Classicism, had preceded in the literary presentation of antique materials. Already in 1750 were published Dawkins & Wood's "Illustrations of Palmyra and of Baalbec", after 1757 Adam and Clerisseau's drawings of the Palace of Diocletian at Spalato, and from 1762 Stuart & Revett's great work on the Antiquities of Athens. Particularly the latter exerted a deep influence, not only on English art but on that of all Europe. In Germany, where learned research and philosophy very early found zealous culture, appeared a chief representative of the classical tendency in the acute and learned Joh. Joach. Winkelmann (born 1717 at Stendal; died 1768 at Trieste), the founder of the history of art and of archaeology. In the year 1754 he crossed the Alps for a permanent residence in Rome; in 1763 he obtained there the high position of a chief superindent of all antiquities. Already in 1755 had appeared in Dresden his "Gedenken" (Thoughts on the Imitation of Grecian Works), received with enthusiasm; in 1764 was published there his fundamental principal w work, arousing attention, the "Geschichte der Kunst der Altertums" (History of the Art of Antiquity). He treated in it the art of the ancients, less in the sense of antiquarian research, than in the experience of its esthetic harmony, and therein he gave a clear and exhaustive expression to the longings of his time. Two years later Lessing published his "Laocoon", which with the deep influence, that Lessing exerted on the entire evolution of German intellectual life, gave to the endeavors of the classicists the most powerful impulse. Meanwhile in France, Rousseau, by his path-breaking requirements written in a charming style (in 1750 appeared his "Discours sur les Arts"), had opened the contest against the degenerated civilization a and for the return to nature, thereby incalculably influencing the spirit of the time.

The centre of the new art movement was and remained Rome, f from which Winkelmann in connection with artists of like aims pointed out new paths, not only in architecture, but also in painting and sculpture. But in France those events occurred,

that with elemental weight produced the complete breach with the past and by their consequences shook the entire West, those of the French revolution. This originated disturbing transformations, not only in politics and in the social conditions, but in all domains of intellectual life. Also in art the previously decisive influence of the court and the nobility as well as that of the church was suppressed, and which was opposed by the state, partly governed by the people, the cities, the rich merchants and manufacturers, as well as the public in the great cities. With the French revolution appeared a new period.

It was indeed a result of the ideas spread over the entire West, of the equality and brotherhood of nations, that men regarded art as international, as something common and generally intelligible to all nations. In common was the limitless glorification of antique art and antique life by means of the revolution; in common were also the sources from which cultured peoples drew their artistic impulses; also common to all were the scientific interest and the archaeological conception of art, in which men did not then seek the national. The aims w were the same almost without exception; the closest adherence to the antique and wherever possible the direct transfer of i its series of forms; it is no wonder, that after the political waves had become quiet, the Neo-Classicism came to uncontested supremacy, gradually becoming international and colorless, such as no art style preceding it ever was. We shall see in the following, that it exhibits diversities almost entirely in its preliminary stages, as these were required by the unlikeness of the bases given in the preceding art, by the nature of the sources utilized, and the training of the executing masters.

205 I. Architecture of Neo-Classicism in France.

The same artistic event, that founded the last stage of the wildest Rococo in France, became the starting point for the return of Classicism; the competition established in the year 1732 for obtaining plans for the facade of the church of S. Sulpice at Paris (pages 88, 98). For this Meissonier (page 100) had proposed a design, in which he followed his aimless art imagination, carrying the Barocco ideas to the extreme, e even transferring the ground principles of the Rococo to the facade, which had never yet been the case in French architecture, since this always restricted itself within severer limits. In direct opposition to Meissonier's design was that prepared by a young artist, trained in the Roman-Classistic school of Salvi (page 39), Giovanni Niccolo Servandoni (1695-1766). He terminated the church by a wide facade of two stories constructed above each other, each of which received an open columnar portico between two solid walls, and was crowned by a continuous unbroken and heavy cornice. Servandoni's project won the victory. It was the victory of the grand strength of the Roman school over the belittled, sprawling and ornamented nature of French Rococo architecture. The execution first began in 1742. In order to give the facade (Fig. 204) more of the appearance of a church, a tower was later added on each corner. With this work Servandoni entered the rank of the most respected architects. Further importance as an innovator in art he obtained by his theatre decorations, which carried his fame to nearly all the larger courts of Europe.

About the same time another French architect had attracted public attention to himself, Jacques Germain Soufflot (1709-1780), by his great hospital (Hotel Dieu) built at Lyons in 1737. Likewise in this was expressed a conception of art opposed to the Rococo. The facade is 735.2 ft. long with two and a half stories, only subdivided by a middle building and two slight projections at the ends, while the recessed portions over the rusticated ground story received simple window enclosures without caps. Curved lines are avoided, excepting the round-arched windows in the ground story and the oval windows in the upper story of the end projections, and likewise all

all swelled scrolled and ornamental work. Only a festoon of bands or flowers above the windows of the upper story in the projections forms a dry ornamentation. Soufflot found this treatment of the facade so much approved in higher places, that he was later called as an instructor at the Royal Academy in Paris.

The two works mentioned above were in their time only detached phenomena in French art life. Otherwise on the one hand h had been dominant until about the middle of the 18 th century the utyle favored by the nobility and introduced by the regency, on the other the severe school originated by Blondel(page 69). But the examples given by Servandoni and Soufflot influenced the artist world in increasing measure. A new and grand architectural project became a test of strength between the t two tendencies and by its consequences a milestone in the history of French architecture. King Louis XV, after the peace of Aix-la-Chapelle (1748) following the conclusion of the war of the Austrian succession, hit on the idea of having a monument to himself erected by the city of Paris. He had the architects of the Academy requested to prepare plans. The problem there presented was grander than the Louvre facade in its time, since the artists were nowise restricted by definite requirements, but had to make sketches entirely according to their o own ideas. The submitted designs are preserved in copper engravings. From the consideration of the king for existing buildings and their occupants, none of these were executed. On the other hand the king chose a site located before the Tuileries garden and belonging to himself, established a second competition, and directed the instructor at the Academy, Jacques Ange Gabriel (1699-1782), the son of the previously mentioned Jacques Jules Gabriel (page 102), to combine a new plan from the designs received. (1753). From his work originated the Place Louis XV, now termed the Place de la Concorde. The long facades (Fig. 205) permit the recognition of a strong imitation of Perrault's Louvre facade, whose principal motive is repeated, the colossal columnar order in the two upper stories. (Figs. 205, 81). The lower story is subdivided in round arcades on piers. The details exhibit a severe treatment; it was

fundamental and determinative for French-Classistic architecture. As an ornamental motive are employed only stiff festoons of leaves above the windows and cloth hangings under them and on the angle projections. Already it appears here that Classicism has won supremacy in the art of the court.

He found at the court powerful support and assistance in the Marquise de Pompadour (died 1764), so generally favored by the king, who busied herself with art. In the circles of the artists and the cultured, there labored in his favor the spirited and influential archaeologist, Count de Caylus (1692-1765; page 233). With acute views and unbiassed practical weighing of the value of the antique for the art and literature of the modern period, he had very greatly contributed to clearing up a art questions, and had won for France an importance, similar to that of Winkelmann for Germany. Nearly contemporary with the publication of the first volume of his collected works, t the Jesuit father, Marc Antoine Laugier (1713-1769), appeared before the public with indeed subversive ideas in architectural treatment. * He required as the highest points of view suitability and artistic truth, and indicated nature itself as the only true and determining model. It affords in art and manner the best instruction, as for example it forms the tree trunk as a support. Laugier therefore rejected the rectangular pier and the pilaster, the pedestal, demanded free spacing and uniform diminution of columns, and indeed without entasis, corresponding to the trunk of the tree. He declared the use of arches over doorways and windows to be defective on account of the spandrels produced, and likewise the colossal order, s since this received its importance from the single story. The Tuscan order created by the Romans Laugier held to be a transformation of the Doric, and the Composite column (volume 1, p pages 108, 111) as a tasteless combination of the Ionic and C Corinthian. The returns and the pediment on the longer sides and over the windows must be avoided. In the entire architecture extreme frugality in ornamental decorative work must be the ground principle. These were indeed at first merely "ideas". But they found acceptance in the circle of thoughts of architects and were carried further by them. The immediate result

was a more intelligent and practical conception of architecture, an endeavor for simplicity and clarity, so far as these were expressed in the antique works. Most architects sought the way to the antique at first in a return to the Classicism of the early art of Louis XIV or that of Palladio. Consequently the transition to severer forms of treatment in the facades was less abrupt, than in the internal art. Therein the Rococo was supplanted about 1755.

* *Marc Antoine Laugier; Essai sur l'Architecture. Paris.1752.*

The STYLE OF LOUIS XV * * then set in and is an expression of taste accustomed to and refined by the elegant art of the Rococo, even if at first this be merely external, to replace which it adopts and utilizes the forms given by the antique a and wondered at by the entire world, indeed in the still purely ornamental spirit of design of the time, indeed under the influence of the Rococo. Its strength lies in the internal a art. There it chiefly denotes an overturning of the principles previously in force; therefore it attains to a quite onesided adherence to the antique. To animated masses of decoration is opposed great "repose of feeling", to picturesque grouping an orderly appearance. As the first was carried out the separation of the ceiling and wall. In the great halls the w walls were subdivided by pilasters, half columns, and even by detached columns with flat capitals and the corresponding cornices; in the smaller ones this was limited to accenting the enclosures of the doorways and the mantle, which sometimes projects like a frontispiece with the great mirror placed above it. The doorways (Fig. 208) have narrow architraves standing on low bases with ornamented panels as jambs, above being slightly projecting consoles, on which rests a horizontal lintel with a cap, over this being usually a figure relief or a round or elliptical termination with a sunken decorated and arched panel. The mantle was treated as a sort of small table with decorated frieze and slab on consoles. Over it was always placed a great mirror. (Figs. 207, 218). Between these chief p pieces of the subdivision of the walls, their surfaces frequently received in rooms for assemblages niches with statues on pedestals, but otherwise a kind of parapet as a base, in the

portion above this being rectangular enclosures with thin bands, on whose corners were sometimes placed small square plates with rosettes. Elliptical medallions with reliefs and wrinkled bands or festoons of flowers were especially favored. The ceilings were again subdivided in geometrical figures, frequently with a large oval middle panel and with coffer-like panels in the spandrels of the arches. In ornaments, besides the antique ornamental members like egg, leaf and bead mouldings, flutes, pipes, rosettes, frets, wavy bands, palm leaves, acroterias, anthemion bands and the like, there are also the acanthus scrolls in a pattern and languid form, thinly and loosely applied, wreaths of flowers -- mostly stiff laurel branches -- rings and rosettes arranged beside each other as frieze ornaments and light draperies, suspended in curves between rosettes. The acanthus leaf received a peculiar outline, which recalls the elongated spoon-shaped forms on the Rococo capitals. Palm fronds and naturalistically treated branches of plants, particularly thin leaved laurel, rose, ivy and vine, cornucopias, urns and vases with fret-like broken ears, the lyre, tripod, architectural fragments, emblems of day and night, inverted torches, halos and similar motives appear in the panels treated after the manner of the ancient grotesoues. (Fig. 214). With them are connected figure paintings, that pheferably have as subjects antique ruins, the life of the farm in the grottos, Mythological subjects like Leda, Ganymede and the like, groups of cupids, trophies with antique shields and helmets, still l life, as well as little loves, doves caressing each other, and Chinese accessories, scattered around without criticism. The cabinet work has metal fixtures so that these add structural importance. On the stoves, supports of all kinds, clocks, house utensils, bases of columns, fluted drums of columns and capitals are often employed to superfluity. (Fig. 229). In c colors are preferred fine, delicate and light harmonies with silver. By the richness in symbolical meanings of the motives, the naive combination and the extraordinary perfection in detail, the decorations od the Louis XV style acquire a dignified and lovely earnestness with a peculiar charm. (Figs. 207, 213, 214).

* * *The style named after Louis XVI does not exclusively fa-*

fall within the reign of that king (1774-1793); it developed rather in the two last decades of the reign of Louis XV (1728-1774).

** Note to Fig. 208. The execution of this dining room in t the chateau already mentioned on page 88, occurred in 1779-81 after a design of Belanger.*

On the facades men adhered to the former general design and in general also to its proportions. For the plan strict symmetry was determinative. In the structure was a tendency to e extend the proportions to slender forms. The columns and entablatures received careful treatment according to their position and treatment; the Tuscan order was preferred, and the Ionic capital was often hung with garlands. Projections were v very modest; the cornices were designedwith five members, often indeed with labored modesty. Instead of the pilasters frequently occurred wall strips, which were decorated by medallions and emblems. (Fig. 208). Hermes and caryatids disappeared. On preferred places the wall surfaces were occasionally adorned by fixed festoons. The portals received a monumental treatment chiefly by Tuscan columns. The enclosure was often omitted at the windows. On the other hand sunken relief slabs in rectangular or arched form for relieving doorways and windows were not willingly rejected. (Fig. 209). The attics were animated by columns and acroterias, the domes being developed more in height than width. In their place altar-like or stepped structures of square or round form frequently formed the termination.

The new style appeared in a series of buildings in Paris and the provinces. The most esteemed architects were Jacques Ange Gabriel, Jacques Germain Soufflot (page 235) and the younger Jacques Francois Blondel (died 1774). Gabriel is the creator of the Place de la Concorde (page 236). He had charge of the rebuilding of the chateau of Compeigne, continued the works on the Louvre and on the palace at Versailles (Library of Louis XVI and Salon of queen Marie Antoinette), designed there (before 1770) the splendidly decorated theatre (Fig. 210), and erected in the little chateau the Little Trianon (1771-1778) a charming building, that exhibits in the exterior as well as in

the garden design also influences of the English Renaissance. (Fig. 211). After the death of his patron Louis XV, he fell into disfavor, since his works no longer corresponded to the requirements of the tastes of the court.

More in the tendency of the elder Blondel (page 69) worked J. F. Blondel the younger, an influential instructor in architecture. From 1740 he carried on an academy of architecture, where he represented a severe conception in the subdivisions, based on the antique, but a freer one in the style of decoration. In the year 1773 appeared his "Cours d'Architecture", later a much used manual on architecture. As a practical architect he was chiefly engaged in Metz, (Cathedral portal, bishop's palace and city hall), and in Strasburg (on Kleber Place). From Soufflot came the principal work of early French Classicism, the church of S. Genevieve, the present Pantheon (design prepared after 1757, executed in 1764-1781). The ground plan forms a Greek cross 275.6 ft. wide and 367.5 ft. long with four piers in the form of right-angled triangles placed around the central area as supports of the dome, and a narrow aisle of columns around them. The dome is constructed in three shells (first under Napoleon I) with the lantern attains a height of 272.8 ft. The interior is covered by low d domes over the cross arms and by coffers in the aisles, and is kept in pure Roman Corinthian forms. The exterior (Fig. 212) is massively treated by the imposing portico and the colonnade around the drum, but otherwise is kept very simple. The external walls of the cross arms have no subdivision, aside from t the nobly profiled cornice with the garland frieze beneath it. The architect evidently there counted on the effect of the enclosed wall surfaces in contrast to the open portico and the dome. By the grand and unified treatment of the interior and the dignified architecture, the Pantheon belongs to the most important works of postmediaeval architecture.

One of the most important secular buildings of this period was erected in 1771 by the greatly gifted Jacques Denis Antoine (1738-1801 in the Mint. The facade has a width of 27 axes, with two high lower and a low upper story, extends along the bank of the Seine and is only broken at the middle by a projec-

projection containing five axes, that on the rusticated ground story supports five Ionic detached columns with heavy cornice, crowning statues and attic. The recessed wings have rustication in the ground story , with windows in the principal story rising from a bold belt course, parapet balustrade and horizontal roof, at each third window (counted from the external angles or those of the projection) being a balcony, but otherwise without any vertical subdivision. The facade became a direct model for a series of other buildings, particularly for the Royal palace at Brussels (Fig. 259). As a theatre architect Victor Louis (1735-1807) came to high fame by his theatre erected at Bordeaux in 1773-1780. He arranged the audience room in a three-quarter circle, supported the galleries by columns and only separated the boxes by low division walls. This theatre remained a model design until late in the 19 th century, especially for its convenient access and broad stairways.

The French revolution (1789), in its blind hatred of everything courtly, made an end of the style of Louis XVI, that had developed its charm, especially in the smaller rooms, and had gradually attained high gracefulness. (Figs. 213 and 214 exhibit decorations of the year 1788). The fate of this art was thus intimately connected with that of the king and of his unfortunate wife, Mare Antionette. The spirit of the revolution first of all turned against ornamental richness; to this was opposed the most extreme simplicity. Meanwhile art researches had opened further domains of the antique. The temples at Paestum in lower Italy and in Sicily were drawn and thoroughly studied. The Doric order of the temple at Paestum (volume 1, pages 79, 82) appeared as the most impressive. Its architecture rejected delicacy of the profiles, necessarily on account of the materials already employed in antiquity (poros and travertine), and it was regarded as a direct model. By solid wall masses, restriction of the architectural expedients, the use of strongly conventionalized architectural ornaments with the exclusion of natural forms in garlands and the like, men sought to attain to elevated grandeur. To produce the utmost effect possible, architectural forms entirely without ornament were then preferred in dry proportions, especially stumpy Dor-

Doric columns, partly without flutes or even with flutes only commenced at top and bottom (volume 1, page 65), and further plain friezes, caps and cornices of heavy slabs, windows without jambs, and round-arched lintels without mouldings. Only the principal entrance was characterized by a columnar porch, a portico, or by a columnar loggia over it, where perhaps a fret or some palmatiums were employed. The striving after simplicity went so far, that even the idea of the cube in its undivided form found adherents, even for monumental buildings of the most complete type. This heavy Dorism of the time after the revolution, the style of the Directory, had its most important representative in Charles Dewailly (de Wailly, 1729-1798), a colleague of Servandoni, in Jean Francois Chalgrin (1739-1811), a pupil of the same master, and in Claude Nicolas Ledoux (1736-1806), who was engaged both as architect as well as copper engraver and writer on art. With A. F. Peyre the Younger, Dewailly built the Odeon theatre at Paris, where he omitted even the pediment on its octastyle portico. The building was burned in 1799, but was again rebuilt by Chalgrin. Ledoux most consistently cherished this tendency. He was an enthusiastic admirer of the cubical ground form of buildings, undivided wall surfaces without ornament, windows without enclosures, massive ashlars and colossal columns. The guardhouses at the gates are examples of his heavy style, of which we mention here only the Barriere S. Martin of the year 1788.

Under Napoleon I French architecture took a grand and unified course. The powerful monarch had an expressed preference for monumental architectural works in the style of those of t the Roman imperial period. The Pantheon and the long columnar facades of the antique temples received his particular approval; the triumphal arches and honorary columns at Rome appeared to him as impressive tokens of imperial power. He beheld the principal superiority of buildings in the monumental grandeur, in the solidity of the materials and the workmanship. Unpretentious as he was himself, he preferred to reject all rich artistic means, even if these related to assemblages. By appropriate construction and the use of materials and by the endeavor for simplicity, the architectural works acquired an earnest

character and a national basal tendency, and in spite of the slavish dependence upon the antique world of forms, under the sway of the French art spirit, devoted to dignified and refined treatment of details.

Neo-Classicism then matured into the EMPIRE STYLE, named after the empire of Napoleon. This had already been prepared for in the seventies of the 18 th century in the works of certain masters, among whom may be counted the before mentioned architects, Dewailly, Chalgrin, Ledoux and Peyre; but first under Napoleon it came into general use and unified development. Its innovations appear in the ground plans only in slight measure. In the princely chateaus and the houses of the well to do citizens, one would not miss the comfort developed during the preceding period. The arrangement of the rooms therefore remained the same on the whole. For churches, men regarded the peripteral temple of antiquity, the central structure of the Pantheon at Rome, and also in part the Early Christian basilica as direct models. The theatre took an important place in the age of improvement. The form of the audience room already chosen by Victor Louis (page 243), the treee-quarter circle with galleries inserted above each other, was retained, but the plan was extended by the addition of a foyer (hall for promenade and conversation), and later frequently with a concert and ballroom in the plan. The buildings intended for the government, for justice, for educational institutions, for traffic etc., already on account of the diversity of the requirements in each special case, matured no definite or generally prevailing type of plan. As a rule, the ground plan was designed in accordance with the proposed architectural problem, and then the covering occurred in classistic forms. The new methods of construction did not substantially affect the framework of the b building, although the emperor followed the acquisitions of t technics with great interest, particularly the introduction of iron as a structural material. Thus the character of the Empire style was substantially fixed by the treatment of the forms. In this return to the architecture of the ancients men d did not stop with that of the Romans and Greeks, but in part went farther back to the art of the Etruscans and even of the

Egyptians, particularly to the latter after the appearance of the grandly planned work on the land of the Pharoahs ordered by him. A labored archaism dominated architectural creation. Men limited themselves to naked wall surfaces, arcades without ornament and entirely simple cornices and window enclosures. The preceding severe Dorism thus experienced a further simplification. But it did not long prevail. The inclination peculiar to the French toward a refined treatment of forms could not be permanently repressed. From the stage of extreme modesty architecture must also of itself again press forward to a richer development. Already since the appearance of the severe tendency, had beside it been maintained a freer tendency, o originating with the younger Blondel (page 242), inclined to the acceptance of decorative ornamental work. This now won influence in increasing measure. But it was always the spirit of the antique, into which men entered and from which they wished to create.

In general the French architects did not as sharply distinguish between the Roman, Grecian and Hellenistic styles, as occurred in England and Germany; they rather adopted the forms, that appeared to them as suitable. Therein they stood nearer the Roman than the Grecian. Indeed some of them placed themselves in direct opposition to all endeavors, that did not directly proceed from Greece. These desired to produce a pure Neo-Greek style, and therefore certainly employed Grecian forms with the exclusion of all innovations, such as middle projections, balconies, balustrades and the like, with impressive reference to the strikingly sparing use of ornamental decorative work in Grecian architecture. Yet they lacked influence to succeed generally in their demands. Thus in the French architecture of the empire the Roman series of forms almost entirely formed the basis. But for the decoration, the Pompeian=Hellenistic art style chiefly became determinative, whose dignified repose and cheerful magnificence aroused the highest raptures of cultured circles. Also from the style of Louis XVI had been saved some motives.

For the treatment of facades on the particular memorial buildings, triumphal arches, for whose erection in glorification

of places made famous by his soldiers, the emperor always had an open hand, the antique originals almost entirely serving as direct models. On the churches appeared the porticos of columns, or with a richer treatment, the surrounding colonnade and the antique mode of subdivision of the wall. For the remaining public buildings and the houses, more reliance was placed on the details for obtaining the classical empression. Before the entrance portico or the portal was preferred a broad flight of steps after the model of the Roman temple. At its side walls were placed statues, candelabras, sphynxes, lions, vases and the like in severely antique forms. The main entrance was generally characterized by a portico, colonnadel loggia or a gallery. The windows received entirely simple enclosures, if these were not entirely rejected. Frequently the windows were also arranged in groups together with rectaugular piers interposed between them, also sometimes with small columns, in this case chiefly for the subdivision of round-arched windows in e evident allusion to the Italian early Renaissance. Great favor was enjoyed by windows in the form of semecircles, where t the arches without jambs rested directly on the window sill or on a continuous belt. For the elevations of the stories were no longer chosen the half columns and pilasters in the sequence usual in the Renaissance, but mostly only a single order, indeed chiefly the Doric, and this only for the middle projection or the middle portal. Frequently the entire subdivision of the wall was restricted to sunken panels between bands like wall strips. A certain force was always given to the principal cornice. It was frequently profiled as a crowning cornice with cantilevers or consoles and was unbroken, if possible. The steep roof suited to the northern climate must yield to t the low or terraced covering of the antique. On chateaus, villas and the better houses, a small intique structure, termed a belvedere, was placed above the roof as a rule.

In the internal treatment, it was sought in secular as well as in church architecture to adapt as far as possible, the form treatment of classical antiquity to the structural requirements. The columns or pilasters with bases and cornices as subdivisions of walls or enclosures of doorways again appeared

in increased measure. (Figs. 215, 216). In the wall panels w were often inserted plaster reliefs. The floors received stone slabs or a mosaic covering; the horizontal ceilings or vaults were frequently constructed with coffers. The incrustations (facings) of the ancients were chiefly imitated in stucco. In the enclosures and the surface patterns the circle and semicircle appeared instead of the ellipse; besides the rectangle with or without angles cut off were also employed the regular figures, star-shaped forms and the like. For the smaller rooms, men chiefly decided for plastering with stretched fabrics, indeed with silks, where the means permitted, elsewhere for c covering with paper hangings, that now became common *, or the Pompeian wall and ceiling paintings were imitated (volume 1, page 125). Since the colors were not harmonized together according to a subjective artistic feelingl and with reference to the purpose, dimensions and lighting of the rooms, but more intelligently, and indeed frequently were not directly transferred from the originals, a variegated coloring appeared there, that must lack the refined harmony of the Pompeian decorations. Otherwise, since men wished to attain to the white or light y yellow tone of Italian marble as nearly as possible, they thought best to be very reserved in the coloring. A pure or slightly broken white or very light blue, gray or green, almost always forms the ground tint, on which silver, dead gold, yellow ochre, Pompeian red and ivory black are pallied to accent the details.

** The manufacture of paperhangings dates from 1835, after paper in rolls appeared instead of the previously employed separate sheets. The machine for printing paperhangings was first invented in the year 1852.*

The ornament (Figs. 216, 217) chiefly employed the antique ornamental members, such as the egg and the leaf mouldings, p pearl bead, rosettes, frets, ogees, acanthus scrolls and laurel branches (volume 1, pages 78, 114). To these were also added lions' heads, griffins, geniuses, cupids, with garlands of leaves and flowers wound around them, and which play with cornucopias and sacrificial utensils, caryatids, tripods, urns w with fret-like broken ears, sphynxes, reversed and crossed tor-

torches, the Roman fasces * and other emblems, the latter chiefly in imitation of the Louis XVI style. On the other hand were avoided its naturalistic wreaths and garlands of flowers. Where foliage came into use it was strongly conventionalized in dry transparent garlands. The ornament was composed of reliefs, often cast in bronze on doors and furniture, or hammered from sheets of metal with sharp outlines on the surfaces.

** "Fasces" was the name of the bundle of rods bound together with a red band, with an axe in the middle, borne in Rome by the lictors, the servants of the ruler and of the highest officials in public assemblies, as tokens of their official authority.*

The entire art of interior decoration allows the recognition of an assured feeling of style and a refined taste, that also appear in the understanding of the beauty of the materials.-- for the furniture were preferably employed mahogany and similar woods. (See the bronze door in Fig. 215). The smith's art, that reached such a high stage in the preceding epoch was therefore almost entirely lost.

At the fall of Napoleon the Empire style was completely developed and established. In the works of the most eminent architects of the emperor, Percier and Fontaine (page 258), it had rather turned toward the tendency of Neo-Hellenism, which was recognized particularly in the weak treatment of the architectural members, peculiar to Grecian-Hellenistic art, especially of the capitals, mouldings etc.,(Volume 1, page 89), with all the other strength in design. The ornamental treatment of the forms and refinement of all details corresponded to the French art spirit far more, than the heavy style of the preceding Dorism. The French Academy at Rome provided for the continuance of classical training of architects in the paths already laid out. Thus the Empire taste dominated artistic creations in t French countries until about the middle of the 19 th century.

Of the leading masters, the previously mentioned (page 245) J. F. Chalgrin further represents the severe Doric style. He won his artistic fame as the creator of the desgn and the fundamental architect of the Arc de l'Étoile, which Napoleon caused to be erected after 1806 in glorification of his campaigns, at the termination of the grand Champs Elysees on an elevated

Place, at the vast scale of 147.6 ft. wide and 164.1 ft. high, surpassing all triumphal arches of the ancient world. (Fig. 218). The structure keeps itself entirely free from the influence of antique models. Its imposing effect is based upon the powerful architectural treatment by the impost belt, the mighty crowning cornice and attic, and as the sculptured ornamentation of the reliefs and the groups of figures 39.4 ft. n high, that are arranged on projecting pedestals at each side of the passage. The completion of the colossal structure, that most strikingly characterizes the developed Empire style , only followed in the year 1836. The military fame of Napoleon was likewise commemorated by the triumphal column erected on Place Vendome in 1806-1810 by Jacques Gondouin (1737-1818), a pupil of Blondel, and by Jean Baptiste Lepere (1761-1844), which appears as an imitation of the column of Trajan at Rome. (Volume 1, page 123).

About the same time the emperor conceived the plan of erecting a new building on the site of the church of the Madeleain, torn down during the revolution. He desired to have a "temple", which should not be inferior to those of the Romans in magnitude and magnificence. Barthelemy Vignon (1762-1846) prepared a design for a peripteral temple of the Corinthian order with a double portico of columns and a broad flight of steps, which received the approval of the emperor, and that Vignon then executed at his command. (Fig. 219). Yet after the exile of Napoleon, this Temple of Fame was transformed into a church by the same architect, by means of the narrow vestibule, side chapels, a semicircular apse, and by the vaulting of the aisle with three low domes. Even though it may not produce by its most monumental and dignified architecture the impression of a House of God, still the architect attained in the interior an earnest and churchly effect, even with the antique series of forms. A stately appearance entirely similar to that of t the Madeleine is that of the Bourse (exchange) erected in Paris after 1808 by Alexandre Theodore Brogniart (1739-1813), a pupil of Blondel. Without taking farther account of the purpose of the interior of the two story structure, on it was employed again the Roman-Corinthian temple architecture directly after the model of the temple of Vespasian in Rome.

The architects just mentioned retained a certain severity in the pose of their buildings and the employment of decorative expedients, that lend to their works an earnest and solemn expression. So much the greater concessions were made to elegant richness by the two chief masters of the epoch, Charles Percier (1764-1838) and Pierre Fontaine (1762-1853). Both had s studied in Rome at the same time, indeed not only the architecture of antiquity but also that of the Renaissance. Having returned to France, they sought to elevate the native internal and minor arts by the publication of designs in the classical sense. Their strength consisted chiefly in decoration and the treatment of details, in which Percier combined a rich art imagination and a refined taste. But Napoleon esteemed Charles Fontaine as the more important artist, evidently on account of his conception being more inclined to a more powerful treatment, and in 1813 appointed him as his first architect. Both artists chiefly worked together and exerted a deep influence on their contemporaries and on the entire French art of the first half of the 19 th century.

The first large commission was received by Percier and Fontaine about 1800 in the building of the chateau of Malmaison, afterwards the favorite residence of Napoleon and of his first wife Josephine. From 1805 onward, they were principally engaged in works on the imperial chateaus, among which the extension of the Louvre formed their chief problem. There they erected the wing connecting the two pavilions of Marsan and of Rohan (ground plan in volume 2, Fig. 301). The facades exhibit, with frequent approximations to the late French Renaissance, an extremely well treated subdivision, entirely designed in t the sense of the Neo-Classicism. Figs 215 and 216 afford a v view of the internal architecture. * A further work of the two architects we have further to mention, the triumphal arch erected in 1806 on the Place du Carrousel, an almost faithful imitation of the Arch of Septimus Severus at Rome (volume 1, page 138), and the Expiatory chapel built (1820-1826) as a tomb chapel for the royal pair, Louis XVI and Marie Antoinette, who fell a sacrifice to the revolution. This received the ground form of the Greek cross with three semicircular apses, portico and dome in the noblest proportions and treatment, and with a

sober but extremely finely designed ornamentation.

* *The execution of the portico of the building represented in Fig. 215 followed under Napoleon I, the hall shown in Fig. 216 under Charles X (in the year 1827).*

Among the pupils of Percier, Hyppolyte Lebas (1782-1867) and Jacob Ignaz Hittorf (1792-1867) from Cologne on the Rhine, are the most important. The former built the church of Notre Dame de Lorette (1823-1836) after the type of the Early Christian basilica with a tetrastyle corinthian portico in very severe forms, but with rich Hellenistic decoration. Hittorf assumed a far higher standpoint. He had thoroughly studied in 1822-1824 the Italian and Sicilian architectural works of antiquity, demonstrated their polychromy, and had thoroughly corrected by his publications on Grecian temples of lower Italy and Sicily the former opinions of the lack of color on antique architect-
157 ural works. Then the long repressed enjoyment of colors again appeared in the foreground, both in the selection of the materials as well as in the mode of decoration. Hittorf first employed on his church of S. Vincent de Paul, begun in 1842 and completed in 1884. For the ground plan he retained in general the design of his father-in-law Lepere as a five aisled basilica with an apse occupying the entire width, but not projecting externally, with galleries, two facade towers and a hexastyle portico. With all its firm adherence to severe classical forms, the interior, by the colored stone materials and the p polychrome decoration, acquired a substantially different effect from before. It received the lively approval of contemporaries. The facade itself (Fig. 220) is still entirely classical in the entire pose and particularly by the noble Ionic p portico. But in pilaster architecture, the treatment of the cornices, the balustrade over the middle portion and the flight of steps is already manifested the spirit of the Neo-Renaissance, then penetrating into French architecture.

2. Architecture of Neo-Classicism in England.

In England occurred in the second half of the 18 th century a period of advancement in the entire public and intellectual life. While the continental powers exhausted their best resources in the seven years' war, England made its immeasurable colonial conquests. Great wealth flowed into the mother country, where it greatly contributed to the promotion of travel, industry and commerce, and also to further all intellectual and artistic interests. At the end of the century in contrast to France, shaken by its great transformations, to Germany powerless in its internal divisions, and to Italy in entire dissolution, England acquired a highly valued position, as a world power. But it did not restrict itself to the political domain. Owing to the intellectual activity of its people, richly developed under favoring conditions, and its aims directed to distant and great things, England likewise had taken the lead in all western intellectual life, and particularly in the investigation of antiquity, among European learned men, artists and men devoted to art knowledge. With the same energy, with which Palladio's teachings had been adopted, men now turned to classistic ideas.

The English Neo-Classicism had no Rococo as a direct predecessor. From the days of Inigo Jones (volume 2, page 232) English architecture had remained within the character of Palladian classicism. The movement appearing about the middle of t the 18 th century in the cultured world for the revival of the antique therefore did not lead in the island realm to a complete breach with the past; it also produced no transition style from the art of decoration in the style of Louis XVI, that changed the Rococo to the Neo-Classicism; it frequently strengthened the previously existing ground principles, made the eye more acute to the purity of forms and favored the development of a severe tendency toward archaeology, which in the restless subordination under the formative principles of the ancients, saw the climax of artistic perception.

Certainly also in England already before the middle of the 18 th century undercurrents had set in toward the classistic conception of art. These pursued other aims than on the cont-

continent. Already in the 17 th century, and thus much earlier than in France and in Germany, men in England had interested themselves in mediaeval architecture as art knowledge, and had published grandly planned works with drawings of mediaeval buildings. * Wren, the principal master of the late English Renaissance, even if unwillingly and only at the desire of his employer, had already erected Gothic buildings (page 201, 206), and other architects had followed his example. These were indeed limited to a few examples. These earliest attempts for a revival of the Gothic art style could not occur in opposition to the strongly increasing classistic movement of about 1750 But they had an effect on this, since they were precursors of a deviation from the classical ideal of art and a separation of aims, and constantly contributed to a certain uncertainty among the architects, who by the authoritative use of the antique, elevated above all doubt, sought a so much closer adherence to the classical models.

* *Dodsworth and Dugdale. Monasticum Anglicum. After 1655.*

Under these circumstances, the circles of architects as well as those of the cultured and art-lowing public, the publications on the architecture of antiquity (page 233) appearing at that time but previously mentioned, were received with great interest. Special consideration was found by the grandly planned work of Stuart and Revett. It gave a most powerful impulse, that the eye should again be directed to the architectural creations of the Greeks. Men drew comparisons between Palladian and Grecian art. This was soon recognized as more elevated; on it was based criticism. 'The Palladian ideal of form w was replaced by the Hellenistic.

The English Neo-Classicism began earlier than on the continent with a severe Dorism. The way to this was found indeed t through Palladio and the Roman antique. In the works of the leading master of the beginning Neo-Classicism, of Sir William Chambers (1727-1796), born in Sweden, but brought up in England and educated under Clerisseau in Rome in 1750-1755, the unity of style was not yet consistently expressed. Chambers employed forms of the Roman antique, as well as those of the Italian and even of the French Renaissance. He also occasionally resorted to Gothic, and even though only in a decorative s

sense, to oriental and particularly to chinese architectural motives, with which he had become acquainted during his stay in China. He held himself averse to Hellenism. His colossal facade of the great official palace, Somerset House in London (1776-1786), with the rusticated substructure, the Corinthian pilasters and three-quarter columns in the upper story and the massive principal cornice still entirely has the basal tendency of a correct Palladianism. (Fig. 221).

The entire abandonment of the Palladian series of forms was earliest completed in the works of the brothers Robert (1728-1792) and James Adam (died 1794), the sons of the previously mentioned William Adam (page 213). The refinement of the internal architecture, as chiefly developed in France, received increased attentinn as a result, for which the Palladian architectural style, chiefly employed for the external architecture, was no longer satisfactory. The two brothers Adam then introduced into interior decoration an extremely graceful and ornamental style, which was essentially based on the Hellenistic series of forms, but also shows many things allied to the style of Louis XVI. They published their designs (Fig. 222), in which the influence of Piranesi is undeniable, and exercised an architectural activity far exceeding all other architects of their time, whose centre of gravity lay chiefly in the erection of great city mansions. To them were given extremely t tasteful ground plans, that are still models. In external architecture certainly occurred a weakening in them, that is especially striking, when one compares their works with those of their great predecessor Wren. They sought there by severity and dignified pose to produce an impression, chose simple Doric columns and piers, semicircular windows in the lower story and pediment, elsewhere rectangular windows with caps or round arches in a simple enclosure, also frequently grouped windows beneath an architrave and plain friezes and cornices in very modest profiles. (Fig. 223). The country chateau of Kedlestone Hall in Derbyshire is not only in the ground plan but also in the structure, particularly in the portico above the flight of steps, is not inferior to imitations of Palladio; but the domed room is evidently influenced by the Pantheon. The facade

of the University at Edinburgh erected in 1789, exhibits an earnest character by the grand and quiet proportions. The facade rising in two and a half stories above a high rusticated base is subdivided by an elevated middle and two side projections, each of which has three axes as well as the recessed parts. The entrance opens between Doric columns and is flanked on each side by two projecting columns, that support the balcony. Aside from a stiff garland of flowers in the attic of t the middle projection, there is no ornamental decoration. A great number of buildings in London still exhibit remains of the already strong Hellenistic style of the two Adams.

257 Their successors lacked the special creative power and independence opposed to the ever increasing book knowledge in architectural creation. The opinion, that the antique works under all circumstances must be taken as the most perfect creations of architecture, and that individual works should be esteemed the higher, the more closely they came to the antique ideal, was carried so far, that not only details of antique buildings were directly copied, but wherever possible, precedents of all forms employed were sought in antiquity. The structural organism itself was ever more neglected. Sometimes inconceivable imitations of famous monuments were placed beside and above e each other. The enjoyment of classical forms controlled everything. Finally even the simplest citizen's house and gate lodge received a Doric portico and an accompanying cornice.

About the end of the 18 th century Sir John Soane (1752-1835) was the most esteemed architect. He belonged to the theorists, after long studies in Holland and Italy had written a work on temples and designs for baths (1778), later publishing designs for houses (1788). His most important work is the Bank of England in London, planned with great dimensions. On it he furnished the street facades with sham doorways and false windows, which should have been solid for security, whenever possible; he subdivided the fronts by an order of Corinthian columns and pilasters. Thus he employed the means of expression for the most open treatment of the structure, where its purpose required the contrary. The treatment of the forms is that of the Roman antique; in the architecture of the court, Soane reverts

directly to the Roman designs of baths.

The later masters were professed Hellenists. William Inwood (1771-1843) was made famous by his church of S. Pancras in London (1818-1822). It has the plan of a hall church with galleries, before whose facade for its entire width is placed a portico directly after the model of the Erechtheion. Behind it rises a tower in three stories, on which are repeated the treatment of the Monument of Lysicrates and that of the Tower of Winds at Athens (volume 1, pages 87, 96, 95). Inwood arranged
240) a sacristy at each side, on which he copied the details of the Caryatid portico (volume 1, page 88). Just as if also compiled appears the internal architecture with the massive columns in the choir, the slender columns in the galleries and the heavy coffered ceiling. But the church of S. Pancras aroused w wodder and found imitation, a proof that in considering architectural works, the eye had become chiefly directed toward the detail forms, the columns and capitals, friezes, coffers and the like, remaining on these with an almost entire lack of any criticism of the structural organism itself, and a reasonable choice of architectural expedients according to the requirements of the particular architectural problem. Where this finally led is most strikingly shown by the country massion of Grange in Hampshire, built by William Wilkins (1778-1839) in 1820. There the plan of a dwelling was compressesd into a T-form, w whose architecture in nowise expresses the purpose of the building. (Fig. 224). The complete subordination of the requirements of the arrangement of the rooms to the purely superficial enjoyment of the architectural members of antiquity, appears on this structure exactly in a similar way. Wilkins had b better fortune in the rich development of Corinthian columnar architecture on the National Gallery in London, two stories h high and very much elongated, and in the similarly treated University there, although there the harmony of the whole was entirely lost.

John Nash (1752-1835) disposed more freely of the form apparatus of the antique. He carried on a great activity, chiefly following classical paths, but partly also in the mediaeval s sense. He greatly influenced the architectural appearance of

entire quarters of the city of London (plan of Regent street, of the Regent's park with the adjacent groups of houses, the row of houses at Carlton House terrace etc.), and frequently adhered to the architectural style of the Adam brothers. As his chief work must be taken the garden facade of Buckingham palace, erected for George IV in 1825-1837, whose projecting Hellenistic-Doric columns of the height of the ground story s support a continuous balcony, while in the upper story only t the middle projection exhibits a Corinthian order of pilasters extending through one and a half stories. The creations of N Nash do not lack grand lines but internal truth. In order to secure the most impressive architectural appearance possible, he combined a great number of small and medium separate houses (sometimes 20 to 30) into a whole, that he treated like a palace on the middle and side projections, while the recessed portions remained simple. Thus he gave an example, which soon f found imitation in Edinburgh and other cities. The stucco facades painted in oil colors were introduced into England by him in place of the former brick facings, and facilitated this architectural style, but became fatal to it. The owners of the separate houses would not yield the right of deciding on the color of his property. Soon the colossal facades were composed of variegated and distinct strips, and not seldom one portion of the projection was red, another part being green or blue, which had an extremely disturbing effect, especially when the vertical division passed through a column. Thus the deception is abruptly manifest, when these buildings appear as palaces.

The English Neo-Classicism was perfected in the works of Baseir, Elmes, Cockerell and Smirke. George Baseir (1795-1845) was the builder of the Fitzwilliam Museum at Cambridge, whose dignified show facade between narrow end projections, treated more like antes, opens in a noble Corinthian colonnade with o octastyle middle projection. That L. Elmes (1814-1847) unfortunately died too early, but commenced the great S. George's Hall in Liverpool, which is to be regarded as the most important creation of Hellenism on English soil. The building is 590.6 ft. long and contains a great festal hall, two smaller halls and other rooms for public sittings of the courts of jus-

justice. It rises in a terrace accessible by a wide flight of steps in a majestic structure, and with a clear treatment by a colossal Corinthian order with sixteen columns in the middle projection of the main facade, an octastyle portico at one end, and with rectangular Corinthian pilasters in the recessed parts with the corresponding entablature and attic. The internal architecture (Fig. 225) was completed after 1847 by Charles R Robert Cockerell (1788-1863) with a somewhat freer employment of Grecian forms. Cockerell was from 1810 to 1817 in Italy and Greece, where he made excavations at the temple of Athene on Egina (volume 1, page 80) and at the temple of Apollo in Phigalia, whose results he published. His well proportioned Hanover chapel in London (1823-1825) recalls in the design of the facade with two towers the noble columnar portico of S. Vincent de Paul in Paris (Fig. 200). The last representative of pure Hellenism was Sir Robert Smirke (1780-1867), Soane's most important pupil. After returning from his journey made in 1801-1805 through the civilized countries of Europe, he built (after 1809) the stately Covent Garden theatre in London (Fig. 226). Then for the dignified housing of the art treasures of the British Museum, greatly increased during the recent period, a new building appeared necessary, and Smirke was entrusted with its erection (1823). He devoted his chief attention to the Ionic portico, designed at a great scale, that he built before the building, 374.0 ft. long in a middle colonnade and two wings. In consequence of the immense cost required by the construction, its completion according to the design was not approved. After the facade was finished (1845), Smirke was compelled to give up the continuation of the portico along the sides. Today the colossal columnar facade (Fig. 227) appears as a purely ornamental stage scene, only intended to hinder the access of light to the rooms behind it, that certainly require more abundant lighting.

Thus it must dawn in the perception of the most zealous venerators of the antique temple style, in consequence of the experiments made with its structures, that the art and mode in which the forms of the antique were transferred as in England, thus being purely copied, cannot be brought into harmony with

sound sense in architecture. The classicists by their works had finally brought out the strongest opposition and frequently the scorn and derision of their opponents, and by their transgressions had contributed not a little, that the movement in favor of a revival of mediaeval art constantly won more adherents. By a closer examination of the attempts made by them, recognition cannot fail, that the classical architecture of a antiquity could only be employed for the new architectural problems in a transformation suited to the time, about as the Romans adopted it. The contest of the purposes ever proceeded further to the injury of the Hellenists; it was really already decided by the establishment of the architectural works of the colonnades of the British Museum. Thenceforth (1845) English architecture stood entirely in the paths of the Neo-Romantic and of the Neo-Renaissance.

3. **Architecture of Neo-Classicism in Germany and Austria-Hungary.**

Germany already about the middle of the 18 th century had b been under a predominating foreign influence. This likewise continued during the entire second half of the century, since under the complete religious and political division of the people, with the lack of an economical and intellectual centre and of artists, who could have undertaken the guidance of the nation, the requisites for a strong and unified independent development of German art life were not given. The movement against the Rococo,penetrating from France, also found energetic adherents in Germany already in the fifties. Winkelmann (page 233) had in 1755 indicated the necessity of a reform in architecture by his "Gedenken über die Nachahmung der griechischen Werke".(Thoughts on the Imitation of Grecian Works). The acute Lessing, so strongly influencing the spirit of the time, supported him in a peculiarly effective way in his "Laokoon". By his translations, Voss brought the Homeric epics to the German people. Later Schiller and Goethe also appeared in the ranks of the venerators of classical antiquity. Antique materials gradually dominated the literature and the entire thought. It was thus unavoidable, that the form world of the antique was soon esteemed the highest ideal for architectural creations as well.

But their adoption in Germany at first only resulted from a purely superficial enjoyment of antique treatment and ornamental forms. While the French and English under the influences of the preceding severe school found the way to the antique in a return to their earlier art, which gave it support, unity a and a national stamp, the German masters could not adopt the native Renaissance, so far removed from the "true antique".for the embodiment of the new ideal (volume 2, page 266 et seq.). They must look around for other sources; these were offered in the works of Piranesi (page 233), that had aroused great attention also in Germany. Piranesi saw and drew the monuments of the ancient Romans with an assured intelligence, unusual for his time, and with a refined artistic eye. But he collected substantially only ruins and architectural fragments of every kind, and these chiefly in a picturesque conception, in their

ruinous construction and coursing indeed fanciful. His representations attract attention to the charm of the architectural and ornamental treatment of the details in their contrast to the ruinous condition of the structures themselves and their appearance in the fileds of ruins. By these views the German masters came to know the architectural members, not in their combinations, their relations to the whole, but only in the d details. They filled their imaginations with these, and compared with them a new ornamental work. Already after the beginning of the sixties, orders of columns and pilasters, separate bases, drums of columns, capitals, flutes with cables, urns, oval medallions, frets and cornucopias, garlands and wreaths of stiff leaves had found admission into the internal arrangements of chateaus and churches, as well as into the house utensils of the better rooms of the citizens. Likewise in the facades, they gradually appeared, though in uncertain attempts and frequently mixed with motives from a weakened Barocco style. (Fig. 228). Thus was formed the Pedantic (Zopf = pigtail) style, * which is a parallel to the French style of Louis XVI, and chiefly differs from that by the naive combination of the new ornamental forms and by the retention of many Barocco motives, particularly in the lines of the caps, enclosures and the like. (Figs. 229, 230).

* *The name of "Pedantic style" (Zopfstil) originally related to the art of the periwig period, thus to a time, in which the custom was ordered by king Friedrich Wilhelm I of Prussia, also introduced by him into his army in 1713, prevailing in Germany during the entire 18 th century, that also the men, like the king, should either wear a natural or artificial pigtail (queue). In this respect the term "Pedantic style" would also inclued the Rococo. But with a more acute separation and indeed in more recent times, it generally only refers to the style of architecture developed in the second half of the 18 th century in the reaction against the Rococo, that by a return to tasteless simplicity sought an accession to the antique.*

The epoch of the early pedantic style ended at about the time, at which the French revolution also seized on the heads a and minds of the people on this side of the Rhine. The boudd-

boundless veneration of antique life brought by the ideas of the revolution then led to a complete breach with the influences of the Rococo and to an intensive study of antique art. Men were more severe in scientific conceptions in Germany than in France; they went directly to Greece as the purest source and the most perfect model of artistic creation. Then the heavy and earnest forms of the early period, as presented at Paestum and in Sicily, were soon more highly esteemed, than the more refined and mature style of the buildings on the Acropolis. Even the Egyptian art style was consulted, after it had become known in the West through Napoleon's great publication. (Page 247). The eye was then no longer directed to the details but to the entirety. Men desired to produce effect by weight and monumental dimensions. Great restraint was placed on the architecturel subdivisions. The wall surfaces should appear as such. Aside from purely monumental structures like gateways, museums and the like, columns were held to be justifiable only on the portico, at the principal entrance, or also in a loggia over the entrance (Fig. 231), ornamental and relief decoration in severe Grecian drawing in any case as palmatium or figure frieze, on the semicircular or rectangular sunk panels over the windows, or as insested relief slabs, more rarely as statues on the portico or in the vestibule. After the style of the Corintnian atrium (volume 1, page 124), to this was given a dignified and important pose by detached Doric columns.

267 For the interior decoration fewer models existed from antiquity. Here reference was chiefly made to the works of Percier and Fontaine and of the Adam brothers (page 257). The internal decoration therefore also very closely approaches that of the Empire style. Since this was almost entirely taken directly for the interiors of chateaus, this almost wholly dominated the internal ornamentation on this side of the Rhine. In the inclination toward forms more in relief and to a bolder application of decorative forms was manifested the German art in design. About the end of the century grotestues (volume 1, page 114) found acceptance and abundant approval, and of which some examples had become known already by the books of Piranesi and

from other works, and which then German masters had thoroughly studied on antique buildings in Rome and Pompeii and in the V Vatican loggias (volume 2, page 190). They first appeared on the shafts of pilasters and the panels of doors, but increasingly pervaded the architectural members. Light panelings, partly in relief in stucco and partly painted, appeared in their place. (Fig. 226). In the panels antique materials found acceptance, particularly paintings, that often deceptively imitated relief sculptures, but also views of landscapes with temples, ruins, statues, and also particularly Chinese gardens and pavilions, arched bridges and the like, in a conception, that recalls much in the fourth style of Pompeian decoration (volume 1, page 125).

In the art of the court and indeed in the apartments intended for assemblages and on facades, the great architectural expedients of the orders of columns and pilasters was not yet e entirely rejected. So much the more consistent was the art of the citizens.

268 The German people were very strongly under the ban of the ideas on the generalization of human rights and of popular happiness by its tendency to thought, literature and dreaming. Since to the citizens was still forbidden any intellectual participation in the interests of the entire people by the measures of its princes, yet controlled by absolutistic views, these ideas survived in the world of thought. In this was formed the conception of freedom of the third estate from the petty restrictions of its government, of a citizenship of the world, which not only brought it near to the spirit of the Greeks and Romans, but also allowed it with almost entire forgetfulness of the frightful wounds inflicted upon it by its Gallic neighbor, in recognition of its superiority in the artistic domain, to take it inty its own house and there to mature it. Men hesitated so much the less there, since they wondered at that people, that first on the continent broke its fetters and became a leader in the fight for the general and highest ideals of humanity. The example given by the French in the revolution exerted its overturning effect in Germany with the peaceful character of the people only in philosophy and literature. This

brought out in prose and poetry one revolutionary gush after another. It did not come to powerful and bloody revolution. To the irritating contests, which germany had behind itself, succeeded a relaxation, a longing for repose. So much the more intimate was the participation of the people in the acquisitions of the German intellectual life, which introduced the classic age of literature in a vonderful development of the powers of germans in the literary and philosophical realms. In the souls of the people and under the lead of the most brilliant minds of the nation originated an idealism, which in contrast to the influence of the court in the 18 th century toward the civic virtues, beheld in manly greatness and the strong c customs of the race the purest source of all perefcsion of human existence. But in it from the consciousness of a height in literature, attained by no other people, grew the young plant of a new national feeling. Its purpose at forst was almost exclusively expressed in the purely literary domain; in a art only so far as an increase of the tendency against the supremacy of the Rococo style, which men found like its supporters degenerate and demoralized. The contrast to this also appeared in the citizen's house, and perhaps even more strongly there, than in the great art of the public, in a reversal of all the principles on which was based the scrolled nature of the Rococo, and in the return to the most extreme simplicity.

Certainly the rejection of all richer artistic expenditure was also an unavoidable demand of the conditions of the time. The burdens of the war and of taxes had entirely exhausted the people, and the continental embargos had produced an economical depression, which required the greatest restraint and frugality. Men had become modest through all the misfortunes, modest to complete unpretentiousness.

Under the pressure of these conditions, from this frame of mind was chiefly developed that art style principally at home in the citizen's dwelling, which we present under the name of the "Biedermeier" (honest man's) style. It is the form of expression of a severe and yet spiritually rich time, sheltering itself from the rude external conditions in a beautiful intellectual life, which in a tasteless love for art with great mod-

modesty, accepted the simplest as the best, for the fulfilment of the needs of the habitation, paying the first attention to durability. Extremely unpretentious and only arranged for the most indispensable needs was the plan, infinitely simple and almost entirely reduced to to the naked structural form was the elevation. The architectural elements of the antique made known by literature, the columns and pilasters with the cornices and pediments could only come into consideration for public buildings, particularly as porticos for churches, city halls and the like, and perhaps also in the vestibules of especially rich structures. Also these are chiefly the forms of a Doric reduced to the extreme limits with stumpy columns without flutes or pilasters with the correspondingly triglyph entablature. On dwellings the subdivision of the facade mostly consists only of the surface divisions by vertical and horizontal bands, by the arrangement of broad wall strips, that often extend through several stories, so that the windows lie in sunken panels. (Fig. 232). If men wished to go farther, the portal was then characterized by the simplest combination of columns or pilasters with frieze, cornice and pediment. Sometimes, even though more rarely, a balcony was arranged on consoles, which indeed appear as entirely plain stone slabs projecting from the wall in form of a half ellipse rounded off at the upper end. Over the windows were preferably placed sunken and usually semicircular relieving arches, occasionally adorned by ornamental work. Otherwise frets and palmatium bands, acroterias, rosettes, ornamental bands or a singular relief, let into the wall at a suitable height, formed a dry concession. (Fig. 233). Careful attention was always paid to severely symmetrical design and to a well considered proportion of the wall surfaces to the openings. (Fig. 231). Thereby these buildings received a higher approval. Wherever possible, evidently obeying an impulse coming from England, the better houses were set back from the street in a garden.

Of the internal treatment of the living room (Fig. 234), the working rooms of the intellectual heroes of Germany's classic time,and preserved in their original condition, give us a representation. The ceilings are tinted white, the walls white

or pale green, more rarely light blue or yellow, the floors sprinkled with white sand, so that the appearance of the floor approximates that of the ceiling. The stove is likewise white, architecturally treated and as a rule, is decorated by some ornament. On the wall terminated at top by a plain cornice, the mirror with narrow gilded frame, broad decorated frieze and c crowning band occupies a preferred position. Some copper engravings and family portraits in rectangular or round frames, black or varnished brown, surrounded by a great number of silhouettes of the members of the family and of its circle of friends (then a favorite and cheap substitute for the portrait in a drawing or lithograph), are distributed on the remaining wall surface in severe symmetrical regularity. Among the furniture is the glass cabinet in which the valuables and nicknacks are exhibited, is indeed the most important piece. A "secretary"like a cabinet, a part of whose front can be turned down as a writing desk, a chest of drawers, on which is a clock with alabaster columns and with cupids or emblems of day and night, of time and death, a canopy, table, chairs, perhaps also a rectangular spinet, complete the furnishing. Everything shows the purely structural form of the ideal of utility. The construction is in a reddish-brown wood; the angles are e exceptionally accompanied by a modest inlaid band, the vertical angles of the cabinet were also formed as black half columns, not seldom with the execution of the base and capital in wrought brass plate. For particularly rich furniture the feet of tables and chairs were sometimes carved as lions' paws, and the furniture was adorned in suitable places by fine ornaments cast or wrought and chased in brass in a very pleasing manner, but very skilfully arranged. (Fig. 235). The careful protection of the furniture by coverings and the covering of the pictures with gauze show a high appreciation of the house furniture. These rooms, that have remained almost unchanged on many estates in the country, also produce in their pathetic modesty, in their genuineness and restraint a very strong impression, that constrains us, if we represent to ourselves the life led there by our fathers, the pressure under which they existed, their frugality, their endeavors, influences and hopes, that

they only timidly expected to realize. We must thoroughly consider them, in order to form for ourselves a representation of the character of the Biedermeier style, that as an art form of the smaller German citizens living in narrow conditions during an economically depressed time, unusually active intellectually, merits our particular interest in regard to the history of civilization and of art.

To the great architectural problems the Biedermeier style w was always foreign. Its aim was always directed to modest requirements and to details, and it did not suffice for composition in general, where the statical functions of the architectural members were also to be taken into consideration.

If we review the previously characterized (page 266) artistic creations of Germany during the first epoch of the development of the Neo-Grecian style, we shall see that it was supported by an elevated conception of its purpose. An earnest endeavor for truth, for suitability in design and genuine materials, an assured intelligence and feeling for good solutions of good plans, for well harmonized proportions, and for a form t treatment full of character and faithful to the style, are expressed in the works of the more important masters. Even with extreme limitation of means, it understood how to give to its buildings grand lines and a dignified and imposing pose. The antique, the early Grecian art preferred, stood as widely independent from it as its French and English contemporaries.

The great national advance after the fall of Napoleon also had as a result an increased interest of the public in art and its problems. It on the one hand lay in the removal of constraint, that weighed on the spirit in the countries of Europe, on the other in the natural and historically necessary course of evolution of architecture, that it then gave opportunity for a more elevated freedom, cheerfulness and festivity. The severe style, principally developed from early Grecian art cleared itself gradually to Attic grace. Under the active fostering of art-loving princes architecture received grand problems, frequently proposed in the service of the national affairs, and in not a few cases, these were fulfilled by powerful designs and brought to monumental solutions. In the second

quarter of the 19 th century to one of the most intellectually and artistically qualified masters of architecture was allotted, to lead German Hellenism to a truly Periclean perfection, attained in no other country.

For the design of buildings of Neo-Classicism in Germany in regard to Catholic church architecture, of public buildings a and of dwellings, substantially the same is true, that we have already said concerning the French (page 246). The similarity compelled in both countries by thepreceding Rococo, by the influence of the antique and by the puppose itself, also had as a result harmonizing tendencies in the treatment of the ground plans. But in Germany the Protestant church architecture occupied an important place. In the 18 th century Protestantism produced no more important works after the great creations of Bähr, Schmidt and Sonnin-Prey (pages 175, 176, 192). Likewise the numerous writings from the beginning of the 19 th century, among which those published by the Berlin master Louis Catel in the year 1815, "Grundzüge einer Theorie der Bauart Protestantischer Kirchen" (Elements of a Theory of the Mode of building Protestant Churches) should be mentioned in the first place, but it contained no substantially new ideas. It is chiefly occupied by questions of style, although the ground principle of building in accordance with the purpose, that is according to the requirements of Protestant worship, it is not desired to state as -- self evident. What might have come into consideration as improvements on earlier designs, on account of the limited means resulting from the extraordinary exhaustion of the country, mostly remained only in sketches. When an improvement in conditions again appeared (in the second quarter of the 19 th century), architectural activity was individual, entirely dependent on the conception of the artist. In t the great master from Germany's classistic period, Carl Friedrich Schinkel, again appeared for German Protestantism a chief representative of its church architecture.

The transition to the purely classical style of architecture was earliest completed in the palaces of the kings of Saxony and of Prussia, and of the landgrave of Hesse-Cassel. In Dresden, where de Bodt and Longuelune (page 177) already before t the middle of the century had influenced a return to classical

forms, the new tendency found entrance under the patronage of the art-loving king Friedrich August III at the same time, H. Soufflot planned the Pantheon in Paris (1757). Here as there Roman properties had long since been introduced in the theatres. Among the architects the first expressed classicist, Fried. Aug. Krubsacius (1718-1790) was appointed in 1784 professor at the Academy of Art, founded in 1763. He chiefly rebresented in his writings and buildings Blondel's claims (page 69). He was a zealous admirer of Knobelsdorf (page 196), even if in theory he also appeared against the Rococo still employed by him. In his first epoch, re still **returned** to Rococo forms, if he wished to produce great pomp. His ground principles:- simplicity in the plan, of the building lines and in the architecture, thus avoidance of projections, plain subdivisions of the walls, window enclosures without ornamentation and the rejection of pediment caps and all decorative work and the like, he embodied in his principal work, the Country House at Dresden, built in 1770-1776. The vast building is 252.6 ft. long, well proportioned in its masses and with a mansard roof, but it has only on the middle building a subdivision by simple wall strips. The interior contains a grand stairway. In his activity as a teacher, Krubsacius required a direct return to the Grecian antique. His associate in time and in art, Christian Traugott Weinlig (1739-1799), became more prominent by h his writings and designs, than as a practical architect. He had studied for several years in Rome and in Paris, saw his ideal in the Roman antique, but in his endeavors to bring the series of forms of antiquite into the service of the new architectural problems, he had adopted the ground principles of Palladio, and particularly his theory of proportions. From 1790 he was in Dresden the upper architect of the country. W Weinlig's free art imagination, in particular not declining t the enjoyment of ornamentation (see the wall decoration by him in the chateau of Pillnitzl Fig. 236), was sometimes even inspired by Barocco ideas. In Rome the grotesques of the antique and those of Raphael had fascinated hig (volume 1, page 114; volume 2, page 190), whose style he introduced in Dresden at the beginning of the eighties in an extremely fine imitation.

In Berlin the classistic architecture first came into use on the palace of prince Heinrich, now the University, built by t the Hollander Johann Baumann the Elder (1706-1776) in 1748-1753, probably after a design by Knobelsdorf (page 196), a U-shaped plan, which only on the middle projection and on the frots of the two wings exhibits a modest vertical subdivision. The Catholic church of S. Hedwig erected in 1747-1778 by order of Frederic the Great was built as a circular structure in imimation of the Pantheon at Rome. A greater advance was received by Berlin architecture through the gifted Carl von Gontard (1736-1802), born at Mannheim, who had received his training in Paris under Blondel, then practised in Bayreuth for the margravine there, then entering in 1765 into the service of her brother, Frederic the Great. He assumed the chief charge of the palace of Friedrichskron at Potsdam (page 197), the dome on which is referred to him, and added to it the so-called Communs as the enclosure of the court. This consists of two two and a half story buildings placed opposite the wings of t the palace and characteized by a flight of winding steps in two flights, portico and dome, which are connected together by a semicircular portico with a triumphal arch at its middle. The charming and picturesque architectural group, in its classistic architecture kept in the style of Louis XVI, is still dominated by a Barocco keynote. In Berlin Gontard erected in 1777-1780 at the Royal gate the Royal colonnades (Fig. 237), that also still produce an imposing effect in the present traffic of the great city. From 1781-1785 were erected the two d domed towers 249.4 ft. high at the western sides of the German (New) and the French churches on the Gendarmes marketplace. (Fig. 238). These serve for no definite practical purpose. They are purely decorative monumental structures, but as such have high beauty of form,and on the broad place very effectively animate the view of the city.

With greater effect on the architecture of Berlin was the B Brandenburg gate, erected 1788-1791 by Carl Gotthard Langhans (1733-1808), the first great creation of the Berlin Neo-Classical school in conscious adherence to the antique. (Fig. 239). In the plan of the gate between two wing structures, it was e

evidently desired to follow the model given in the Propyleion ar Athens. But the massive columns 45.9 ft. high are still d derived from the Roman-Tuscan order (volume 1, page 108). On this imposing architectural work is manifest the change from the graceful elegance of the principally French art of Gontard to an earnest Dorism. In the same direction, but still more strongly worked Heinrich Gentz (died 1811), who in his Old Mint, built in 1798-1802 on the Werder marketplace in Berlin, r returned directly to the Grecian antique in the manner of the early Empire style. To a clearer conception of the nature of the antique came Upper Building Councillor David Gilly (died 1808),and particularly his early dying and highly gifted son Friedrich Gilly (1771-1800). From them radiated strong impulses on Berlin art creations; from their school also came the talented Schinkel, to be mentioned later.

In Cassel worked the expressed classicist Simon Ludwig Dury (Du Ry), of the artist family already settled there for two generations (page 190). His Museum Fridicerianum (1769-1779), an elongated building with 19 axes and a colossal Ionic pilaster order, a boldly projecting temple cacade, entire simple w window enclosures and a crowning balustrade (statues) (Fig. 240), is a particularly severe structure in the classical sense, in many respects recalling the English works. Of smaller artistic importance is the palace of the elector, built by the same master in 1767, which in the 19 th century was extended (1826) by the Red palace erected next the Museum. (Fig. 240). The chief work of S. L. Dury is the chateau of Wilhelmshöhe n near Cassel (1786-1794), a palace kept within the classicism of the English school, that owes its fame first of all to the grand forest park surrounding it, and further dating from the Barocco period.

In an allied sense, George Moller (1784-1852), a pupil of L. Weinbrenner,to be mentioned later, was employed as court architect for the Hesse-Darmstadt line about the same time. By h him was the theatre at Mentz (completed 1833), on which the semicircle of the audience room first evidently appeared on German soil, and likewise the Catholic Court church at Darmstadt (1827), a tasteless circular structure with an internal circular colonnade of 28 Corinthian columns, on which rests

the dome, coffered in plain stucco.

At Würzburg in the palace after 1770 were built the vestibule, the stair hall and the left (Ingelheim) wing in the classistic style, after men had advanced in the sixties to a simplified Barocco, in which certain classistic motives had found acceptance. The hall represented in Fig. 229 dates from the year 1777. It is characterized by the developed German Pedantic style of the 18 th century. In the 19 th century grand duke Friedrich had the apartments of the right wing and also in part of the left wing, intended for the prince's court, newly d decorated (from 1806) in the style of the later Classicism. T The execution was under the charge of the then Court Building Director Alexander de Salins de Montford (1753-1821), an architect coming from France in the storms of the revolution and settling at Frankfort-a-M., where he created a series of beautiful buildings, was in the Würzburg service in 1807-1815, then again returning to Frankfort. His apartments in the palace at Würzburg are arranged with refined artistic taste (Fig. 241), and belong to the most imposing interior decorations of t the Empire style.

The most important south German representative of the severer Dorism during the first quarter of the 19 th century was Friedrich Weinbrenner of Carlsruhe (1766-1826), who had been educated in Zürich and Vienna, was in Italy from 1792 to 1797 (Rome, Paestum and Sicily), then after a brief engagement in Strasburg, receiving a call to his native city. There with most extremely limited means, owing to the misfortunes of the conditions of the time, he commenced a series of rich creations, full of character, that cause him to appear as an enthusiastic adherent of the classistic theory in the conception of the Berlin master Langhans, of Gentz and the elder Gilly, but likewise shows the knowledge of English and French buildings. His works are characterized by model solutions of the ground plans and general proportions and by excellent construction a and the effect of the surfaces. Among them are to be mentioned in the first rank the Evangelical City church (1807-1815), a rectangular hall plan with doubled galleries, a hexastyle C Corinthian portico and a tower attached on the axis, and further the freely imitated from the Pantheon in Rome, the Catholic

church of S. Stephen (1808-1814) with an Ionic portico and a domed area of great span, 98.4 ft. wide, the margrave's palace on the Rondell Place (1809-1811) with a hexastyle Corinthian temple facade, that recalls English designs (Fig. 242), t the stately city hall (1821-1825; Fig. 231), and as the last work of Weinbrenner, the nobly treated Mint (1826).

In the extreme southwest of Baden was erected in the 18 th century an important architectural work, the Abbey church at S. Blasien (1768-#783), by the Frenchman Michel d'Ixnard, then Electoral Court Architect at Treves. It is a high domed rotunda of 150.9 ft. diameter with an internal circular colonnade of Corinthian columns, on which rests the dome 109.9 ft. diameter, an elongated choir and a vestibule between low angle buildings like towers. (Fig. 243). The entire architectural treatment shows the developed style of Louis XVI. In Stuttgart a pupil of Weinbrenner, Nic. Fried. von Thouret (1767-1845), who also became known as a painter, was chiefly engaged on the internal architecture of the palace. From 1796 he had charge of the building of the pleasure chateau at Hohenheim, where Goethe knew and learned to esteem him, in consequence of which Thouret was called to rebuild the prince's palace in Weimar (1790-1803). His remaining activity belongs to Swabia. Besides him in Stuttgart worked Giovanni de Salueci, the builder of the quite symmetrically arranged and refined pleasure chateau of Rosenstein (1823-1829; Fig. 244)., and of the palace W Wilhelm, erected (1840) as a permanent residence for the royal family, already conceived with greater freedom. In Munich Nic- Schedel von Greifenstein (1752-1810) built the Gate of Maximilian Joseph (1805), and Karl von Fischer (1782-1820) the Court theatre (1818), an impressive, organically well considered work with a proud octastyle Corinthian vestibule. *

* *The theatre burned in 1823, but was again rebuilt after F Fischer's plans by von Klenze (page 288).*

In the Austrian imperial city of Vienna, the learned Joh. F Ferd. Hohenberg von Hetzenberg (born 1732 in Vienna, died there 1790), the first professed classicist and the architect most esteemed in the second half of the 18 th century. The Gloriette (Fig. 245) picturesquely located by him in the park of Schönbrunn in 1775 is an extremely charming work, but with all

severity in design is still dictated by the picturesque invention of the Barocco period. A very much severer classicist w was Peter von Nobile (1774-1854) from Switzerland, who erected the Burg Gate with a width extended to 236.2 ft. and in a very dry Dorism. In his enthusiasm for Grecian Doric art he went so far, that in 1822-1824 he erected in the People's park a c copy of the Temple of Theseus at Athens. An allied conception was exhibited in Budapest by Michael Pollak (1773-1855), whose National Museum (1837-1841) has a grand temple facade composed of eight Corinthian columns.

About the close of the century appeared in Berlin a powerful and truly talented artist nature, Carl Friedrich Schinkel (1781-1841). He was born at Neuruppin as the son of a Protestant p pastor, after his death went to the Gymnasium Zum Grauen Kloster (Gray Monastery) in Berlin, where there grew up in him from the association with the younger Gilly (page 278) a real e enthusiasm for art and indeed both for painting and for architecture as well as the art industries. Under Gilly's guidance Schinkel made his first studies; after whose early death he a also carried further a part of his works. With the means thus obtained he undertook a for him very instructive journey to Italy and France (1803-1805). With his strongly picturesque and poetical tendency, the grand landscapes there charmed him more than the architecture itself, and this only so far as it appeared as an especially effective object in the view of the monumental landscape. And therefore in a striking way, even in the land of classical art, he gave the preference to the Gothic architectural monuments with their animated outlines, living organism and rich subdivision, over the creations of the a antique. When he had returned to Berlin and in his capacity as an architectural official in the state service, he more closely approached the principles of beauty of the Classicism then prevailing in Berlin, enthusiasm for Greece was aroused in him by a thorough study of the publications of Stuart and Revett (page 233). But he stood with greater mastery concerning this than all his contemporaries and predecessors of the Neo-Classistic period. To his fresh spirit and his free feeling for the beauty of form and for the nobly harmonized rythm

of Greece, Hellenic architecture did not appear as a restricting and binding canon.for later creative activity; for him it was elastic and capable of adaptation to new requirements. U Under Schinkel's hands the form series of antiquity obtained body and soul in organic combination. We discover in his best creations a marriage of the German spirit with Greece in the same magical beauty as in Goethe's Iphigenia. To a blind imitation of the antique, that the seeking and attempts of the architecture of the Empire style committed, he was opposed. F For each separate commission, he first based the architectural programme on the requirements to be satisfied by the structure. Then he designed the plan in reference thereto, indeed with p perfect taste for a pleasing arrangement of the building in t the surrounding landscape. His works in this respect are still models today. The earliest building is the new Main Guardhouse in Berlin (1816-1818). It has a fortress-like plan as an enclosed rectangle with square additions like towers to accent the anglesand a double hexastyle Doric portico. The arrangement on this of relief ornamentation (goddesses of victory) on the frieze instead of triglyphs already manifests a freedom from the classical principles of form. In the year 1816 after the burning of the theatre built by Langhans, the master received the commission to erect a new building, for which the foundation walls of the old structure were to be utilized. T The problem proposed there was particularly difficult, since on the limited area were to be arranged, not only a large number of rooms for the administration, but also a great concert hall. Schinkel solved this in design, ground plan and structure in the most splendid manner (1818-1821). To the grand and wonderfully harmonious external architecture (Fig. 246), with all the Attic purity inspired by a modern spirit, corresponds a just as happy interior decoration, a model in its way. From 1822 to 1828 Schinkel then erected the Old Museum, to receive the art collections founded under Friedrich Wilhelm III, on a site strengthened by piles and long continued work, with an i imposing portico facade of 18 Ionic columns between ante piers and with a domed area enclosed by a circle of Corinthian columns, after the model of the interior of the Pantheon covered

by a dome. If this museum is not to be regarded as a model a according to the requirements established today for such buildings, it cannot be overlooked, that its master desired to erect for the purpose there given a building in itself filled with beauty.

Schinkel also exerted a detemmining influence on protestant church architecture. In his numerous normal designs prepared for state and church officials, calculated for comparatively modest means are found both basilican and central plans and t their combinations, as well as the ground forms represented i in Fig. 121 (the hall church of T-form, the polygonal and the circular church, and even the form of the Latin cross). In certain plans he decided for a complete separation of the proper church for preaching from the church of the communion into two rooms, which were connected together by wide openings. In his later designs Schinkel gave the preference to the basilican plan with a choir niche. He placed the altar on the axis and the pulpit at an angle of the choir recess. Along both l longer walls and the entrance side, he arranged galleries in two stories, with the organ in the gallery over the entrance. He characterized the facade by one or two towers, according to the means at hand. Schinkel's principal church work is the N Nicolai church in Potsdam, designed in 1826, but only erected in 1830-1842. (Fig. 247). On it he desired to solve the problem of the Protestant central building over a Greek cross not expressed externally and with a great dome, in the most imposing manner; the portico composed of six Corinthian columns exhibits a truly Attic grace and purity. The drum and the dome were only erected after the master's death by his pupil Persius (page 318). It also already shows in its Grecian treatment of details reminiscences of the Italian Renaissance. Persius likewise added at the angles of the substructure, designed as entirely enclosed by Schinkel, the timid pier-like little angle towers, which lessen the power of Schinkel's treatment of the building. A further church architecture of Schinkel, kept within Gothic forms, will be considered in the next Chapter. (Page 318).

At a time in which only limited means were at command for

architectural creations, Schinkel undertook great and important works for the entire evolution of modern architecture. To his talented designs also interior decoration and the art industries, dor which he furnished numerous designs (of furniture, stoves, decorative utensils etc.), owe valuable suggestions a and new forms. By far the greater portion of his architectural projects had the fate to remain unexecuted, thus his completely designed plans for a palace Orianda in the Crimea, in which with an unusually rich and wonderfully harmonious art i imagination was permeated by the modern spirit, he had magically interwoven an entire form world of Grecian beauty with the magnificence of the southern nature. That another and equally spirited design for a royal palace on the Acropolis at Athens likewise never came to execution, we certainly do not desire to lament, on account of the preservation of the ruins there.

Schinkel was called away from his richly active life at a t time, when by the accession to the throne of the art-loving king Friedrich Wilhelm IV (1840-11861), and after the restoration of the finances of the state, a prospect had opened for a rich development of his powers. Among his pupils were none, that received the artistic inheritance left by him on his elevated plane. It was less the personality, the artist nature, than the purely scientific regard and respect for historic order and correctness of form, that with them dominated architectural creation. The favorite architect of the king, Fried. Aug. Stüler (1800-1865) indeed proved himself gifted, manysided and versatile, also unusually fertile in his architectural activity. He was a professed eclecticist;* both in and outside Berlin he erected a great number of buildings in the most different styles. In Berlin he chiefly embodied the architectural ideas of the king, who desired to create a larger group of structures, similar to the ancient imperial forums (volume 1, page 117) and conceived as the "Forum Fridericianum". At h his command Stüler first built the extensive but tasteless New Museum (1841-1857), whose piece of magnificence was to be formed by the vast stairway hall with the visible roof trusses, but which can scarcely be satisfactory in spite of its splendid decorations. Then in the centre of the design should be

placed a peripteral temple. But only a pseudoperipteral building (volume 1, page 62) was erected, with an octastyle Corinthian pediment facade at the end and the colonnades surrounding the entire design. Even the exterior can produce no especially favorable impression by the unfortunate proportions, by the exceedingly high base and the windows on the longer side jammed between the half columns, than the construction of rooms for containing the works of the later German art exhibits the entire absurdity of the idea of employing the scheme of an antique temple for a museum. Stüler only furnished the plans for this building, that received the name of National Gallery. The execution was in the hands of Heinrich Strack (1805-1880), a pupil of Schinkel. It was carried out in costly materials and a very refined treatment of the details. The National Gallery is the last great architectural work of the Berlin Neo-Classicism.

** Eclecticist (derived from the Greek word for a "selector") is a designation commonly employed recently for artists and philosophers, who do not profess a definite style of theory, but seek to select or combine from preceding tendencies the one appearing suitable for the particular case.*

In Bavaria the evolution of the architecture of the later Neo-Classicism (page 273) followed the tendencies of the art-zealous king Ludwig I (1825-1848), who appeared to have inherited the love for building from the Bavarian regent of the 18 th century, and who fostered Hellenism as an enthusiastic venerator of Greece. He found in Leo von Klenze (1784-1864) an architect, who was to win for Munich and south Germany an importance, like that of Schinkel for north Germany. Klenze, born in Hanover, in his university studies in Berlin came into contact with the group of artists around Gilly and Schinkel. The latter made him enthusiastic for art and antiquity and also gave him the first guidance in the study of architecture, then taken up by him. In the year 1803 he went to Paris, where he continued his studies with Percier (page 253), then in 1805 to England for a brief stay, and later until 1808 to Italy and Greece. Ludwig was still crown prince, when his attention was drawn to Klenze by his design for a European Peace m

monument. He called him to Munich and there prepared for him the ground for a fertile activity. Klenze's first building there was the Glyptothek erected in 1816-1830 for the exhibition of the valuable collection of sculptures. He planned a d design well suited for the purpose with four wings around a s square court. To the facade he gave a massive middle building, occupying one-third of the entire width and rising above the adjacent wings, and which was treated as a Hellenistic temple facade with eight Ionic columns. Otherwise he animated the s surfaces of the facade by six niches within enclosures like windows, that were to receive statues of prominent artists and friends of art. He also employed there earlier Empire forms, based partly on the Roman antique, partly on Palladian motives. Nevertheless the building has a unified and stately effect of the facade, in which its purpose is clearly expressed. From the enthusiasm of the king for Germany's great men sprang the idea of erecting a "temple of German Honor", named the Walhalla, on a hill on the Danube near Regensburg and visible from afar. Klenze designed a Doric peripteral structure with 8 × 17 columns, which was executed in a grayish-white unpolished marble, and should be enthroned on a massive terraced substructure in a sublimity recalling the Parthenon (volume 1, page 86). The exterior enraptures by the imposing architectural appearance, and on closer examination by the almost unsurpassed purity of the style. Not entirely at the same elevation s stands the interior, formed as a cell 50.9 × 176.8 ft. (Fig. 248), even if it does not lack a tasteful general effect, particularly by the splendid lighting by skylights (as a hypaethral temple. volume 1, page 64). In the internal decoration, the creative power dominating the entire architectural organism to even the last detail, Schinkel was doubtless superior to the Bavarian master. But it must be said in favor of Klenze, that he was even more free in the external architecture than Schinkel. After the Walhalla was completed, Klenze received the commission to erect on the Theresien meadow a Doric Hall of Fame (1843-1853) as a recognition of "Bavarian merit and f fame". It was built as a duodecastyle colonnade with a peripteral temple with 4 × 7 columns projecting at each end. Before

the structure stands a colossal statue of Bavaria, modeled by Schwanthaler and cast by Miller in bronze, that has a very effective background in the Hall of Fame. Klense's most mature work must be the Propyleum, that the king had built as the entrance gateway to the King's Place laid out before the Glyptotek in 1846-1863. Fig. 249). The master placed the hexastyle gateway passage, kept in bold Doric forms, between two towers like pylons (volume 1, page 19), thus retaining in the form a notable independence from the famous model on the Acropolis at Athens. The gateway structure is very happy in its general p proportions, is treated in its details in complete purity of style, and affords a truly monumental termination to the broad and harmonious Place. It is indeed the most characteristic a architectural monument of the spirit of Munich of that time.

Besides Klenze the Architecture-loving king also took other architects into his service. Among these Friedrich von Gärtner (born 1792 at Coblenz,; died 1847 at Munich) stood next to Klenze as highest in the royal favor. Gärtner had likewise received a classistic training, later visited Paris, Italy and Sicily, and in 1829 also published a work on the monuments of that island. But he was rather a submissive being, accepting the ideas of the monarch, than an acute and refined artist.By him with the assistance of Klenze the king had prepared the d designf for the Hall of Deliverance (Befreiungshalle) near Kelheim on the Danube. This was begun by Gärtner in 1842, carried farther in 1847 by Klenze, and was dedicated on Oct. 18, 1863, the fiftieth anniversary of the battle of the nations near Leipzig. The purpose of the building is evident from the inscription cut in the marble floor:--"May the Germans never forget, what made the war for deliverance necessary, and by what they conquered". The Hall of Deliverance is a colossal r rotunda with a coffered dome, in the interior of which are placed 34 goddesses of victory by Schwanthaler. In the walls a are inserted tablets with inscriptions, that refer to battles, fortresses and commanders. On the exterior the arrangement of buttresses, on which are placed maidens as the supporters of tablets with the names of German races, mediaeval motives are already perceptible. In the entire appearance of the building

is clearly expressed the German groundtone corresponding to i its purpose. Gärtner was also the builder of the Gate of Victory (Siegestor) at Munich (1843-1850), an almost pure copy of the Arch of Constantine at Rome, as well as of the Pompeian House at Aschaffenbugr (1842-1849), which indeed presents a good idea of a Hellenistic house, (the temple of Castor and Pollux in Pompeii served as a model), but otherwise only interests us as a characteristic of the artistic inclinations of the enthusiast on the royal throne. (Fig. 250).

At the time when in Munich, on the Danube and the Main, the works just mentioned were executed as the last important evidences of the south German Neo-Classicism, there also originated buildings in the capital and other places, that took the a architecture of the middle ages and of the Renaissance as models. Hellenism had gradually died out, even in the eyes of i its most zealous patron, king Louis I. From the beginning of his architectural activity in Munich, Gärtner had cherished t the Romanesque architectural ideal. But even Klenze, the professed Hellenist, must content himself in employing the form series of the Early Christian, also directly derived from the antique, and of the Italian Renaissance, at the request of his royal patron.

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4. Architecture of Neo-Classicism in Italy and Spain.

At the beginning of the second hafl of the 18 th century, Italy long had not had control of its fate in its own hands. Already in the 16 th century the provinces composing the existing monarchy were divided into the kingdom of Naples and Sicily, comprising about the southern half of the peninsula, the States of the Church lying in the middle around the capital Rome, and several duchies occupying the northern parts of the country, which from 1530 and during the 17 th century in greater part belonged to the Spanish empire. During nearly the entire 18 th century Austria and Spain contested with varying results for supremacy in Italy. Finally Napoleon I made his conquests on Italian soil and his deep encroachments on the internal conditions and the entire public life. Only after his fall were gradually collected those forces, that raised the land out of its weakness and divisions (in the year 1860) to a united and energetic kingdom.

Likewise in art life in the course of the 18 th century Italy must yield its leadership to the northern lands, and that had controlled since the victorious campaign of the Renaissance over the western world. About the middle of that century it still exerted a mighty influence on the northern countries. But this was terminated, not by new model architectural works in a great style, but by the creations of antiquity, by Pompeii and the Roman antiquities, that were spread over all civilized lands in Piranesi's engravings. The teachings published by Piranesi and Winkelmann found a favorable soil in Italy, w where Winkelmann was counted among the Romans with a certain justification. Already the entire third period of the Barocco style allows the recognition of a progressive clarification in the classistic sense. Juvara, Vanvitelli, Salvi, Galilei, and Marchione (pages 39, 40) may pass for direct precursors of Neo=Classicism. The transition to that was also completed almost imperceptibly, first indeed in a return to the forms of the Italian late and high Renaissance, particularly in the paths previously pointed out by Palladio and Alessi (volume 2, pages 229, 233). The adherence to these was so close, that certain buildings until in the most recent period were regarded as wo-

works of the Renaissance. Thus for example, the house (casinO) di Livia erected on Place S. Marco in Florence in 1775 by Bernardo Fallani, was explained as a work of the late Renaissance, although many details (the ornamental decoration of the windows in the ground story, the forms of the consoles at the balcony and at the windows of the ground story), plainly indicate its origin in the classistic period. (Fig. 251). Likewise the facade of the church of S. Marco in Florence, built in 1780 by Giovacchino Pronti , by a comparison of styles was erroneously dated (as a work of the 17 th century, without regard to the low reliefs characterizing the classistic period, the refined drawing of the members and the style of the ornamental decorations in the side panels of the upper, and on the niches of t the lower story. (Fig. 252)).

Scientific investigations already in the first half of the 18 th century had been thoroughly made into the ancient Etruscan art. They were carried on by the Etruscan Academy founded at Cortona in 1726; in 1738-1759 followed the publication of the results of research. But although in Tuscany the Etruscan civilization was held to be older and therefore more important than Roman, Grecian or even Egyptian, its effect was exerted less in architecture, than in decoration and the minor arts, particularly in pottery. The Romans learned in art under the lead of Winkelmann energetically combated this preference, onesided and overestimating Etruscan art; they demanded the closest adherence to Greece, which afforded the only possibility to lead the decadent architecture to the sunny heights of pure art. But only in the first quarter of the 18 th century, particularly under the influence of French monarchs, the previously still chiefly cultivated tendency of Palladio, though also clarified and enriched by new decorative details, yielded to the intended Hellenistic Neo-Classistic series of forms, in reality principally Roman, developed with a strong addition of the French art style of that time. This then maintained itself until the era, at which the Italian country again reached its maturity, till the founding of the united kingdom.

The earliest Italian artist of importance, who consciously turned from the Barocco to Classicism , has already been ment-

mentioned; Giovanni Niccolo Servandoni (page 235). He was a distinguished decorator; as such he was called to the great Opera in Paris. The severity of his drawing went so far, that he himself painted his decorations according to statical laws in opposition to the capricious and picturesque representations of the Barocco masters, so that they might have been executed directly in solid materials. Likewise already known to us by his drawings of the Roman ruins, Giov. Batt. Piranesi (1720-1778), from the school of Vanvitelli (page 39), also appeared as a practical architect. His church of S. Maria del Priorato, erected on the Aventine (about 1765), contains many additions from the later Empire style. A richer activity was developed by Michelangelo Simonetti (1724-1781), who at the command of Pope Pius VI (1775-1795) created in the Vatican palace the halls of the muses, of the rotunda, of the Greek cross and the beautiful double stairway. About the same time Cosimo Morelli (1730-1812) built for the Pope as a private palace the grandly planned palace Braschi in Rome (1780-1790) in a rich Classicism based entirely on the Roman antique. On it the style of composition of the Barocco is directly translated into classical details. The building is famous for its magnificent stairway. (Fig. 253). An allied treatment may be recognized in the Bracchio Nuovo (New Wing) od Museum Chiaramonti at Rome by Raffaello Sterne (1771-1820), a work distinguished by well considered proportions and harmonious coloring. After him Giuseppe Valadier (1762-1839), the archaeologist of Napoleon I, was also the leading architect of Rome. At the order of the emperor he excavated the Baths of Titus and the Roman Forum and restored the Arch of Titus (volume 1, Fig. 146). Valadier erected several palaces and churches, among these being the facade of S. Pantaleone (1806), which is kept entirely in the style of the French Empire (Fig. 254); he was also the creator of the beautiful plan on Monte Pincio (1808). As the last great work of Roman architecture of this period, we have to mention the basilica of S. Paolo-f-l-M. (volume 1, page 159), rebuilt from 1825 after the fire of 1823, that was executed on the old foundation walls by Pasquale Belli (1752-1833) and Luigi Poletti (1792-1869) and decorated internally by modern detail forms.

In Naples the church of S. Francesco di Paolo (1718-1828), erected by Pietro Bianchi from Lugano (1787-1849), is the most important work of Neo-Classicism. It is a domed building after the style of the pantheon with a portico of eight Ionic columns between ante piers, whose colonnades on the ground plan of a half ellipse adjoin, after the model given by Bernini on the Place of S. Peter at Rome.

Upper Italy has a larger number of important classicists to be indicated. At Genoa architecture in the second half of the 18 th century followed the path of Galeazzo Alessi (volume 2, page 233). We there meet with Charles Dewailly, already known to us (page 245), a pupil of Servandoni on palace Spinola, that the latter built entirely in Alessi's sense. Later Dewailly, like Servandoni, went to France (page 292). The Camposanto (cemetery) erected by Carlo Barabino (1768-1835) with severe Doric porticos and a cemetery church arranged as a domed r rotunda (Fig. 255) already permits the recognition of the national ground tendency. Giuseppe Piermarini (1734-1808), a pupil of Vanwitelli and as such already engaged on the palace at Caserta (page ~~614~~ 30, developed in Milan a rich activity in the Palladian tendency. He built there palace Belgioso, to which he gave a dignified pose by a well proportioned and evident arrangement. The elongated facade with 25 axes is interrupted at the middle projection by four three-quarter columns of the composite order extending through both stories. At the middle of each adjacent wing a projection is only indicated in the u upper story by four pilasters. Between the windows are added recessed relief slabs. Piermarini was also the creator of the famous theatre della Scala in Milan and the graceful villa Reale at Monza. In Pavia he conducted the rebuilding of the University, whose magnificent court he surrounded by arcades on 300 granite columns. His pupil Leopoldo Polack (1750-1805) e employed for the palace della Villa Reale (1790) colored materials, whereby the noble Palladian-Classistic architecture of the garden facade, subdivided by a broad middle projection and two side projections with pediments, the elevation consisting of a rusticated ground story and a great Ionic order, exerted a clear and cheerful effect. The Napoleonic epoch is characterized by the Arena for containing 30,000 spectators, built

by Luigi Canonica (1767-1844), with the royal box in the form of a small Corinthian temple (1805), and by the arch della Pace, erected by Luigi Cagnola (1762-1833), finely treated, which in general man pass as a copy of the Arch of Septimus Severus in Rome in enlarged proportions. The principal work of the l later classistic architecture of Milan is the church of S. Carlo Borromeo, designed by Carlo Amati (1776-1852) in the year 1828 but only commenced in 1836 and dedicated in 1847, a circular building in the style of the Pantheon, also based on the theories of Vitruvius by the scientific master. In Venice Tommaso Temanza (1705-1789) worked in the sense of the masters of the late Renaissance of upper Italy (volume 2, page 229), with whimh he occupied himself by publishing their biographies. His most important architectural creation is the church of S. Maddalena, a corcular structure on which the antique columnar orders are directly imitated. Greater fame was attained by h his pupil Giov. Ant. Selva (1753-1819). He had studied in Paris and England (there also particularly the plans of houses), and then exerted a fertile activity in Venice as an instructor. He built there the theatre Fenise (1800-1806), which after the fire of 1836 was again restored to its original condition. His most important church creation, the church at Possagno, that was at the same time erected as a tomb church for the celebrated sculptor Canowa, is a very noble circular building after the model of the Pantheon with a finely designed octartyle portico with pediment, which in purity of drawing approaches the Parthenon. Selva in Venice was the last important representative of the matured Neo-Classicism.

SPAIN passed through a period op great advancement under the government of Carlos III (1759-1788), which elevated agriculture, industry and commerce, and also carried on the internal administration with a strong had. But under his weak successor, Carlos IV (1788-1808), in consequence of the favoritism of the vitious queen Marie Louise, the country constantly degenerated, until after the destruction of Spanish naval power near Trafalgar, it was compelled to yield the throne to Napoleon. From 1808 the Spaniards undertook a war of freedom against France, that with England's help restored their freedom in the year 1814. But the country never acquired political importance

and internal peace. Even the Spanish colonies on the contine-
nt of America obtained their independence. Misgovernment and
the rebellions of the powerless and passionate people form th-
enceforth the marks of the internal conditions of the Spanish
monarchy. But in the domain of intellectual and art life the
proud Spaniards ever regarded themselves as a great power, and
the recognition cannot be denied to them, that in general they
have maintained a position of consideration among European na-
tions. By the Academies at Madrid and at Valencia, whose opin-
ions supported the entire public architecture, centres were c
provided for art creations, that showed themselves favorable
in a high degree to the introduction and generalization of Neo=
Classicism.

About from 1760 onward architecture under the leadership of
its great master Ventura Rodriguez (page 47) turned aside into
classistic paths. It retained a national stamp, in so far th-
at it adhered to the tendency pointed out by the elder Herrera.
(Volume 2, page 243). Rodriguez, the first professor of arch-
itecture at the Academy of Art, founded in the year 1752 at M
Madrid, had stated that the extraordinary clarity and grandeur
of arrangement of the buildings of Herrera and their simple a
and classical form world permeated by the true Spanish spirit,
was a direct model for an innately true and national art style.
To him is due the merit, that the architecture of his native
land at a time, when nearly everywhere a colorless internation-
alism was aimed at, under the active patronage of its great

king and independently of foreign lands, raised the national
standard in the spirit of the modern time. Among the numero-
us works of the unusually fertile master, besides the previou-
sly mentioned internal architecture of the cathedral of Nuest-
ra Senora del Pilar at Saragossa, and the facade of the cathe-
dral at Pampeluna (page 56), standing on the stage of the tran-
sition, we also have to mention here the church of S. Felipe
Neri in Malaga (1778), an elliptical central plan with 16 Cor-
inthian columns enclosing the domed area, two graceful facade
towers and an impressive portal, emphasized by four Compositi
columns. An early work of Spanish Neo-Classicism in a concep-
tion remaining midway between the Italian school and that of

the elder Herra, in the church of S. Francisco el Grande in M Madrid (1761-1784), designed by Fr. Francisco de las Cabezas (died 1773). It is a central building over a circular domed area of approximately 108.3 ft. diameter. The principal axis is accented by a rectangular entrance exedra with three-aisled arched portico and the opposite narrow rectangular choir projection terminating in a semicircular apse. At each side are arranged three radial chapels of square ground plan (Fig. 256). The showy ornamental decoration dates from the 19 th century; it was executed on the occasion of the arrangement of the church as a national Pantheon (1837).

By Francisco Sabatine (1722-1797), a native of Spain, who h had studied in Palermo humanistic, philosophical and mathematical sciences, but then turned to architecture, resulted the transition from the early Spanish Classicism to Hellenism. Sabatini had already received his training with Luigi Vanvitelli. (Page 39). He was engaged under him at the building of palace Caserta, whose employer was the later king Carlos III, and noticed him. After the Spanish crown had fallen to him, he appointed Sabatini an engineer officer and called him to his capital (1760), where was opened to him beside Rodriguez a splendid course, both as military as well as royal court architect. Likewise Sabatini still permitted Barocco inclinations to be recognized in his first works, but clarified evermore toward a Hellenistic-Classistic expression of form. It is characteristic for the advance in the spirit of architecture beginning in the last quarter of the 18 th century, that in competition with the highly esteemed and powerful Rodriguez, he won the victory, since his principles were held by the learned world, By which the Grecian culture was more highly esteemed as one far excelling the Roman, purer and higher. On his buildings of the gate (puerto) de Alcala and gate de S. Vicente, as well as on the stately Customs building (Aduana) at Madrid, completed in 1768, is expressed an advance from heavy forms to a lighter and more slender treatment. But a certain cheerful beauty, which distinguishes them from the works of Rodriguez in a severe and monumental character. The convent S. Ana erected at Valladolid exhibits in the noble simplicity and dignity the proportions of form expression of the most mature stage ofSab-

Sabatini's art.

The climax of Hellenism on Spanish soil was attained by his talented pupil, Juan de Villanueva (1739-1811), who finally occupied the post of general director of the Academy of S. Fernando and of first royal architect. His buildings are famous by the circumspect composition in happy proportions, the elegant subdivisions, the purely drawn profiles and contours, and the frugal and refined ornamentation, an "Atticism", that distinguishes them from the works of other masters. The Museum del Prado, built from 1785, with the open Ionic portico exhibits his style already in full maturity. His chief work is the Astronomical Observatory at Madrid, which in its clear arrangement of the ground plan, the imposing vestibule of six Corinthian columns, the dome well treated as an Ionic circular temple, and the refined handling of the details, reaches the high elevation of the creations of the German Hellenist Schinkel.

In the 19 th century under the unfavorable internal and external conditions, the art imagination of the Spaniards no longer came to a free and grand development. Men remained in artistic respects almost entirely dependent on foreign countries, without being able to transform their series of forms in the national sense. The Spanish nation had indeed thrown off the yoke of Napoleon, and had produced an importent creation in the Gate (puerta) de Toledo in Madrid(1814-1827; Fig. 257), built by Antonio Aguado, in which was later effective the spirit of the Spanish high Renaissance with French Neo-Classistic influences. But the Parliament Building erected by Narciso Pascual in 1843-1850 as the last great work of the first half of the 19 th century, with a stately Corinthian portico bears entirely the character of an academic and purely Roman Classicism in its design.

5. Architecture of Neo-Classicism in the Netherlands and in Scandinavia.

The diversity of the bases afforded in the southern and northern portions of the Netherlands for the evolution of architecture, to which we have previously referred (page 103), is likewise expressed in the period of Neo-Classicism.

BELGIUM meanwhile had a varied political history. Until 1794 it was under Austrian rule, then under French supremacy.In the first peace of Paris (1814), it was united with Holland in the kingdom of the Netherlands. From 1830 after the revolution extending over all Belgium against the union, it formed an independent state. Austria had endeavored by thorough reforms to produce an internal attachment of Belgium to the Hapsburg empire, without attaining any deep result. Indeed by the Austrian measures the independent development of the architecture was restricted, which was so strongly prominent in the preceding epoch. In its further course it did not follow the lead of Austria, but that of France, which was closely allied to the nation. From France Classicism was also introduced into Belgium.

The first important architect in the new art tendency was the Frenchman Guilmard. By him was the plan of the upper city with the dignified Place Royale (1772), that in many respects recalls the Place Stanislaus at Nancy. On it he erected the palace of the counts of Flanders, whose ground plan in U-shape with a great court enclosed by a wall and two portals after t that of the French mansions. The architecture with wall strips extending through one and a half stories above a high rusticated story, recalls the Saxon and Vienna works of the early Classicism. To Flemish taste attention is further paid by a luxuriant ornamentation. Besides the palace, Guimard erected the scarcely classical church of S. Jacques-sur-Candenberg, (1776-1885), with an imposing Roman corinthian temple facade and bell tower. It so nearly approaches the architectural appearance of the antique religious buildings, that in the time of the French revolution, it was declared a temple of reason, on which the statues of Moses and David should be replaced by those of Lycurgus and Solon. Guimard also erected on the Pla-

Place Royale the Palace de la Nation (1779-1783), on which may be recognized already a more mature stage of the development of Neo-Classistic architecture. (Fig. 258). For the plan the master took as a model the English government building, that exhibits an impressive peristyle and a great semicircular assembly hall with seats rising like an amphitheatre, as the most important parts. His pupil Louis Joseph Montoyer (died 1800 in Vienna) passes for the buider of the chateau at Laeken (1782-1784), for which the owner (prince Albert of Sachsen-Teschen himself made the design. It is kept in the simple and dignified forms of the later style of Louis XVI, cultivated by the Blondel school.

The larger buildings of the period first originated in the 19 th century. The princpal work, the Royal palace at Brussels (Fig. 259),was built by the native architect Van der Straeten in 1820. It adheres so closely to Antoine's Mint at Paris (page 243), that it may almost be regarded as a copy of that. A leading importance in Belgian architecture of the later Neo=Classicism was won by Ludovicus Roelandt (1786-1864), who indeed in general followed the tendency held by his teacher Percier, but chose a free standpoint outside that. He was the creator of the University building at Ghent (1826), famous in h his time, that contains a magnificent circular columnar hall; on the facade the master rejected all ornamental work, in opposition to Percier's style of art. On the palace of Justice there, a noble structure on the Scheldt with 13 × 11 axes and a high flight of steps, above which rises a hexastyle Corinthian portico, there may already be recognized an expressed inclination toward the Italian Renaissance of the Palladian type. Beside Roelandt worked the likewise very gifted Tieleman Franz Suys (1783-1861), who had also received his training with Percier in Paris, but had also undertaken studies in Rome and southern Italy. In Brussels he created the conservatory of the botanic garden, in which he combined the modern appearing iron construction and glazing in the happiest manner with entirely classically treated rows of Ionic columns.

To HOLLAND belongs the later activity of Suys. There architecture, already during the entire Barocco period, had stood

in the path of Palladian Classicism (pages 109, 111, 112).The movement occurring about the middle of the 18 th century in the art life of the adjacent countries in favor of a reform of the art activity in a classistic sense, therefore led in Holland to not essentially new conceptions. Architecture also had in the 18 th century no large problems to master. There were lacking deep artistic influences. But few more important public buildings were erected. Private buildings indeed by t the increasing wealth of the maritime commercial masters increased in spaciousness and in expenditure for internal decoration. The style of Louis XVI found admission into them. But on the exterior a tasteless brick style continued determinative, that presents only a slight artistic interest.

Of famous architects of the second half of the 18 th century, we have to mention J. Husly (died 1795), who erected the city halls at Weesp and at Groningen, and further the two brothers Jan David and Korel Zocher, the former erecting about 1790 the Bourse (Exchange) in Amsterdam, the latter the Catholic church at Utrecht. They remained almost entirely within the tendency followed by Pieter Post and Philip Vingboons (pages 119, 120). In the 19 th century Holland had in T. Fr. Suys (page 300) an important representatiwe of the developed Neo-Classicism. In the year 1820, thus at a time, when Belgium and Holland were united in one state, he was called to Amsterdam as professor. On his works, of which the Museum of Antiquities at Utrecht (1825) is treated in Neo-Greek forms, the Old Bourse (Exchange) there (1845), animated by an Ionic portico, but otherwise very tasteless, the New Lutheran church at Amsterdam and the Catholic church at the Hague may be mentioned, the classistic and very modest profiles of the armhitemtural members appear only as an animated decoration of the facades of the building, whose execution in the native brickwork indicates a new art spirit.

To DENMARK, of the Scandinavian kingdoms, under Frederic V (1746-1766) and Christian VII (1766-1808) was assigned a long period of peace, during which particularly by the intelligent government of the latter, agriculture, commerce and manufactures, the sciences and arts were elevated. Their successor Frederic VI (1808-1839) entered the German federation in the year 1815 to better protect his country from oppression by the

English. But Christian VIII sought to create an entirely ind-
ependent Danish free state. But his endeavors did not have t
the result hoped for. In the year 1864 in the contest with
Prussia and Austria, the southern province of Schleswig-Holst-
ein was lost. The Danish state was restricted to the provin-
ces lying outside the European mainland. In spite of this lo-
ss of political importance, the Danish people, in consequence
of their fortunate equipment in scientific and artistic respe-
cts, have retained a respected position among the German fami-
ly of nations. In the second half of the 18 th century , it
took a famous part in the further development of modern art,
323 and in the 19 th century, its artists, at the head of which
stood the instructors at the Academy of Copenhagen, attained
high regard and an influence deeply affecting Germany.

In Copenhagen Nic. Math. Eigtved (1701-1754), whom we have previously seen as the builder of the Amalienborg (page 220), led the transition from Barocco to Classicism. He was succeded by his pupil and son-in-law George David Anthon (1714-1781), who made himself a name by the publication of the "Danish Vitruvius". To the great Frederic's (marble) church and the participation of the French architect Nic. Henr. Jardin (1720-1790), working in the early Classicsm of Jacques Ange Gabriel, we have already referred on page 219). Jardin had likewise built the small but dignified little chateau of Marienlyst near Helsingör entirely in the French style. His pupil Caspar Frederik Harsdorff (1735-1799) is the first Danish Hellenist. His most important buildings are the Ionic colonnades at the Amalienborg (Figs. 196, 260). As further advanced in the knowledge of Greece appears his pupil Christian Friedrich Hansen (1756-1845), the creator of the noble Frauen church (1811-1829). This is a basilican plan with semicircular apse and two story choir aisles extending along the sides, which below opened between fluted Doric columns into the principal room. By a coffered tunnel vault over the middle aisle and a similarly treated niche vault over the apse, the interior of the church received a harmonious covering. (Fig. 261). The entire interior with the blessing Christ in the altar niche also produces a h harmonizing impression, even with the pagan architecture. The

tetrastyle portico exhibits a maidenly purity and severity, t that recalls the best works of the best Grecian period. Likewise the Palace church at Copenhagen erected in 1826 by Hansen is a basilican structure with a simple outer aisle around the room for the preaching and a tetrastyle portico. Of the two severe Danish Hellenists, the brothers Christian (1803-1883) and Theophilus Hansen (1813-1891), the elder erected the Museum of Natural History. Theophilus chiefly devoted his powers to foreign countries. We shall meet with him again in Athens and in Vienna. (Page 333).

NORWAY first obtained its independence from Denmark in the year 1814. Thenceforth this youngest of the three northern kingdoms surrounded by the Sea took an active part in the cultiwation of the sciences and arts. Frog 1811 to 1813 was built in Christiana the University buildings, for which the Berlin master Schinkel had furnished the designs, but which were worked over by Grosch before execution. The building erected for the Pacultv of Natural History is at most a characteristic showpiece of the architecture of Neo-Classicism, distinguished by a columnar portico crowned by a pediment in a noble Ionic treatment.

Likewise the houses (page 221) received after 1770 a new appearance. The native mode of wooden construction, that corresponded to the climatic conditions in this respect, also henceforth continued in use. But in the number, dimensions and arrangement and connection of the rooms became perceptible a thorough consideration of convenience. The kitchen was separated from the living room, and the fireplace with the hood was replaced by a stove. The previously light vaulted ceilings w were treated as horizontal beam ceilings and covered by boards in a subdivision like coffers. The walls received inside and often outside also panelings with rectangular framing. Likewise the windows were enclosed by wooden frames and applied mouldings. As the covering of the roof, tiles were gradually a adopted. The ornamental decoration, for which the Norwegian people had such high innate gifts, was also suppressed under the influence of classistic ideas, but was expressed so much more abundantly in the minor arts.

For SWEDEN the first half of the Classistic period was a time of internal and external weakness in consequence of the s stupid politics of its government. First under the powerful House of Bernadotte , that Carl Johann (Carl XIV), a general from France and elevated to the royal dignity by his success in war, had founded (1818), the country assumed a renewed advance, that continued until our days and made possible for its scientific and artistic powers an independent participation in the modern intellectual life.

Swedish architecture in the time of the Barocco style had s satisfied the structural requirements in such rich measure by a great number of important churches and secular buildings, t that in the succeeding epoch must occur a quiet period. The Classistic forms came into use to an increasing extent after the middle of the 18 th century. As architects to be named a after Horleman's death (page 226) are count Carl Joh. Cronstedt (1709-1779) and Joh. Frederick Rehn (1717-1793), indeed without referring also to epoch-making creations by them. The leading master was Carl Frederik Adelcrantz (1716-1796), whom we have already known as the builder of the little chateau Cina in the park of Drottningholm (page 226). He was famous for an universal power, clarity and purity in the expression of forms. But he remained still in the tendency of Roman antique Classicism. The Opera House erected in 1775-1782 by him at S Stockholm (Fig. 262), and the Adolf-Frederick's church, arranged as a central building, whose dome was completed in 1783, are evidences of his dignified style. Of the works of Swedish architecture originating in the first half of the 19 th century, only the little chateau of Rosendal in Stockholm created by Frederik Bloms is to be mentioned (1823), that is entirely treated in the forms of the matured French Empire style.

6. Architecture of Neo-Classicism in eastern Europe and America.

The transplantation of the culture and art of western Europe to Russian soil commenced by Peter the Great (page 228), was zealously continued by the empress Catherine II (1762-1796). She called foreign artists to Russia, especially Italians and Frenchmen. Besides these also appeared German and native masters with the greater creations.

The chief part in such a rich architectural activity of the Russian court in the first half of the Classistic period fell to an Italian, Giacomo Quarenghi (1744-1817), who had been educated in Rome. His most important creations at S. Petersburg are the Building of the General Staff, the Gallery of Paintings, the Catherine Institute and the Theatre of the Hermitage. They exhibit a striking inclination toward long facades, that are subdivided by middle and side projections. On the rusticated substructure with round-arched doorways and windows rise two upper stories of nearly equal height, that exhibit columns on the projections and pilasters on the recessed portions. Q Quarenghi's buildings thereby received a clear, although a rather pattern-like treatment. In the English garden at Peterhof, he erected the English palace, whose garden facade, behind a broad flight of steps, shows a portico entirely in the English-Palladian style, and a Bath design in Zarskoje-Selo, for which the Russian baths were taken as a model.

Among the native architects of this time Wasilij Iwanowitsch Baschenow (1737-1799) was the most prominent. He created in Moscow the richly treated villa, now utilized as the Rumjanzow Museum, before whose middle building is placed a Corinthian p portico with horizontal top, while the rich side pavilions are treated like facades of Ionic temples with pediments. His somewhat younger contemporary Iwan Egorowitsch Starow (1743-1808) erected the palace Taurish of Catherine II and the cathedral of the Trinity in the Newskij Monastery at S. petersburg (1756-1814). This is a classical central building, on which above the single lower story, subdivided by Tuscan pilasters and with a hexastyle Tuscan portico with pediment, rise two front towers and a dome. The drum, like the front towers, is covered

by a system of Corinthian pilasters.

The French school of the early Dorism as represented by Chalgrin and Dewaily (page 245) was taken to S. Petersburg by Thomas de Thomon (1756-1814). His Bourse (exchange) there with its 44 Doric columns exhibits a striking similarity to the Bourse in paris (page 252), originating a few years earlier, and produced by the similarity of the art conception.

The style of the matured French Classicism is expressed on the church of S. Isaac in S. petersburg, built by Ricard de Montferrand (1786-1858), a pupil of Percier. The design in any case was influenced by the Pantheon at Paris as a model. But the architectural masses on the church of S. Isaac appear more unified and therefore more effective, since the ground plan forms a rectangle in outline, from which projects at each longer side a double, and at each end, a single octastyle Corinthian portico with pediment, in entirely symmetrical arrangement. In the internal arrangement the Armenian cross (volume 1, page 198) is expressed by the extension of the circular domed interior by two rectangular bays on the longitudinal axis and on each transverse akis. At both sides of the projections on the longer sides (on the diagonals of the domed interior) rise tower-like angle piers, that are crowned by small temples as bell turrets. The massive substructure stands in a well c considered and harmonious proportion to the porticos with pediments (the columns have a height of 82.0 ft.), the small angle towers, the drum surrounded by columns and the dome. The church of S. Isaac makes a grand impression by its execution in granite, marble and bronze. Particularly on account of the extraordinarily difficult foundations on the marshy soil, the completion only occurred in the year 1858. The famous Kasan cathedral at S. Petersburg (1801-1811), erected by a native m master, Andrej Niciphorowitsch Woronichin (1760-1814), closely resembles the church of S. peter at Rome. It is a central building on the Greek cross plan (volume 1, page 153) with an a apse, a hexastyle Corinthian portico with pediment and a high dome, that rises abowe the massive cornice crowning the drum. (Fig. 263). The church occupies the middle of a semicircular colonnade projecting from the facade, which is imitated from

those of Bernini on the church of S. Peter at Rome. The Kasan cathedral and the church of S. Isaac belong to the mightiest creations of Classistic architecture. Woronochin also built the Mining Academy at S. Petersburg with a duodecastyle porti-toward the Neva.

Among the other masters, who took part in the extremely rich architectural activity in the Russian capital, we shall only name Rossi from Lugano and the German master, Leo von Klenze. (Page 286). More definite information concerning Rossi is wanting, but to him are referred a series of important secular buildings; the wide palace of the grand duke Michael (1819-1825) with plan arranged in U-form, and with a stately octastyle Corinthian portico with pediment on the middle axis (now utilized as the Russian Museum), and the Alexander Theatre (1 (1832), whose front facade opens in a wide loggia of six Corinthian columns. Klenze came to Russia in 1839. He was there, as certain forms of details show, influence on the church of S. Isaac and created the Museum of the Hermitage (Fig. 264), a magnificent structure executed in costly materials. His treatment of forms within the limits of a severe Neo-Hellenism (the niche architecture of the facade is treated similarly to that of the Munich Glyptothek, but the plan and the structure already manifest a leaning toward the Italian high Renaissance.

In AMERICA, the "United States" stood in the foreground in political and intellectual respects, and after winning by war their independence from England, gradually sought to take their own course in architecture. On their first building for Congress, the "Capitol" at Washington, burned in 1814, it was believed that an American order had been created, which was d decorated by cornstalks. As an example of early severe Classicism appears the Capitol in Richmond, for which the "Maison C Carree" (temple of Augustus) at Nimes was a model. (Volume 1, page 140).

The influence of the English Palladian-Classicism could not be avoided by the architects of the new confederation even in the 19 th century. The city hall in New York (1803-1812), the White House in Washington (1818), and the rebuilding of the C Capitol at Washington (Fig. 265) after 1814, were erected in this style. After 1835 the Neo-Hellenism found entrance into

Washington. The new wings of the Capitol were erected (after 1851) by Thomas Walter (born 1804) and make a showy appearance with Corinthian columnar porticos and pediments in a purely H Hellenistic treatment. The principal building of Girard Coll-
310 ege in Philadelphia was built by the same master, and harmonizes in external appearance almost completely with the church of the Madeleine in Paris (page 252). A series of other buildings in New York and other cities of north America are also creations of Neo-Hellenistic art.

Likewise the colonies founded by European states in foreign parts of the world, and everywhere that European civilization has won ground, we meet with similar architectural creations, that should produce a monumental expression of dignity and power, thus particularly palaces of the government and similar public buildings, with the form treatment of the Neo-Classicism. Thereby this most strikingly proved its character as an international world style, dominating the entire monumental architecture in its century.

311 Architecture of the Neo-Romantic and the Neo-Renaissance.

General Basis and Style.

However deeply it had even penetrated into the public opinions of its time, the intellectual and form world of the antique, which had received its stamp by the French revolution, could not quiet and permanently satisfy the artistic desires of the northern nations. The Germanic races, in whose art practice expression of their nature had previously formed an essential basis, experienced by the comparison of the Classistic buildings with those of the middle ages a lack of poetic harmony, for which the purely formal beauty of the creations of antiquity could offer only an imperfect substitute. Likewise f for critical scientific consideration, that gradually turned to the native art of the past, the recognition could not fail, that the Classistic architecture could only appear as assumed and transferred from foreign soil, an external form unsuited to the keynote of national art imagination. The buildings of the middle ages, full of character and still standing visible in great number, formed without doubt an infinitely more characteristic expression of the Germanic nation, than that indeed in themselves proved but meaningless structures of Neo-Classicism, which clothed themselves in a garment, borrowed from the creations of pagan antiquity. On these the contradiction between the purpose and the internal plans of the buildings and the architecture given to them, ever became more manifest. Even enthusiastic adherents of Classicism gradually became doubtful in their faith in the competency and applicability of the architectural system of the antique to the works of modern architecture.

In the same measure increased the interest in mediaeval art. One must admit, that the difficulties resulting from the introduction of classical columnar architecture, restricted to definite proportions, into the structural framework, were avoided by the adoption of the infinitely freer members of the middle ages. Then it became clear, that just as impressive facades could be created with the form series of the middle ages, as well as interiors, which not only appeared as more comfortable and better corresponding to the northern climate, thanmby the

by the use of the open style of architecture of the South, but also by its harmony with the feudal middle ages producing an imposing impression, at least not inferior to that of Classicism. Thus it could not be avoided, that the rising movement in the intellectual world for the reanimation of the mediaeval art ideal found a favorable soil, and won an increasing number of adherents.

This movement took its start from literature, as formerly t the reaction against the Renaissance. England preceded in time. The standard of the national Gothic was not lost there, even in the 17 th and 18 th centuries (page 201). After Walter Scott had appeared before the public with his romances, thereby introducing the romantic tendency into literature, poetry had embodied in literature the churches, monasteries and castles of the middle ages. Likewise scientific investigation was ealry devoted to them. To the work "Monasticum Anglicanum" by Dodsworth and Dugdale (page 256) published in 1655-1673, E John Stevens added two more volumes in 1723. Later appeared a great number of descriptions of mediaeval architectural monuments, which prove a lively interest in them in the 13 th century. In the 19 th century it was particularly the splendidly gifted younger Pugin (page 312), who with an enchanting gift of statement, understood how to give expression to his passionate veneration of mediaeval beauty, and kindled in the English people a strong inspiration for the reanimation of the national art of the higher middle ages. In France Victor Hugo had aroused a true enthusiasm for Gothic by his romance of "Notre Dame de Paris". A series of publications on mediaeval architectural works followed. In the year 1837 was established the "Committee on Arts and Monuments" for the preservation and investigation of the national art monuments. In Germany already in the 17 th century the powerful and intellectual Würzburg p prince bishop Julius Echter of Mespelbrunn had opposed the Gothic to the Barocco then existing in the Franconian lands. Numerous churches with pointed-arched portals, tracery windows, and with towers crowned by slender, tall and pointed spires are evidences of his influence, interesting in the history of art. About a hundred years later, at a time when Classicism was still in full bloom, the enthusiasm of the young Goethe

at Strasburg cathedral attracted general attention. * About t the end of the century, it was principally Wilhelm Heinrich Wackenroder, who in his "Herzengiessungen" (Outpourings from the heart of an art-loving monastic brother) (1797) and his "Phantasien" (Fancies on art), broke a path with youthful fire for the romantic tendency. Tiek followed him with his book, "Franz Sternbalds Wanderungen" (Franz Sternbalds' wanderings). (1798). Both works praise in a high key the splendor of mediaeval art, as presented in the old German cities with their venerable churches and monasteries, the places adorned by artistic fountains, the winding streets with the statues of saints on the houses, showing the pious feelings of the citizens. The movement introduced by them in the beginning of the 19 th century, ever more strongly swelling, then won a zealous assistance by the great circle of romantic writers, particularly by Hölderlin, Schlegel, Chamisso, Brentano, Achim von Arnim, Uhland and Kleist. The religious temper of the time strongly aided it. Gradually under the leadership of Grimm and Simrock, the figures of the German heroic sagas and the charming pictures of the German fairy tales supplanted the world of representation of the Grecian materials. This intellectual tendency also in Germany took under its control the formatiwe arts. With amiable acquiescence in a problem recognized as high and of great importance, the architects commenced to make drawings of mediaeval architectural works and to determine their nature. But considerable time elapsed, before men obtained an assueed picture of the different stages of the evolution of the mediaeval styles. First with the growth of the literature appeared a clarification. It was natural for men to not restrict themselves to the pure Romanesque and Gothic works of their native provinces, but to proceed further to the Early Christian art preceding the middle ages. Bunsen published (1842) a work containing drawings of the basilicas of Rome, and Quast a similar one on the Early Christian buildings at Ravenna. Both exerted a continuing influence. Soon afterwards appeared a series of German, English and French publications also on Byzantine and Saracenic art. The extension of the schematic tendency in the literature followed, although at some distance, the architectural creations of architects, About the middle of the 19 th

century in Germany as in France and England, the architecture of the Neo-romantic style had already attained a high elevation in its evolution.

* *Goethe's Essay "Von deautscher Baukunst", D. M. Erwini a Steinbach" appeared in the year 1773.*

But the mediaeval art ideal could not generally and permanently satisfy the architectural ideas of the modern time. In the evolution of the arts definite principles assert themselves as in that of the sciences, as soon as they have once won a solid following. And there were found in favor of the principles of form derived from the works of antiquity in the pupils of the classicists and in a great part of the academies, which after a judgment of the purely formal value of the beauty of antique and of mediaeval architecture, were not willing to yield their previously assumed standpoint. The antique had already secured for itself an assured place in the knowledge of art. Since it corresponded to the mode of research, derived more from the intellect than the feelings, after the ground of the antique in general (according to the state of science at that time) had been exhaustively treated, important men, l learned in art, had consistently advanced to the series of Renaissance forms developed from the former. The French art literature herein preceded. In 1830-1840 appeared Letarouilly's work, "Edifices de Rome moderne", which gave new impulses in the sense of an introduction of the Italian Renaissance into French architecture. The native Renaissance also soon came into the series. These publications obtained importance for the further evolution of architecture. The Paris Academy of Art shone in new splendor as the starting point of the Renaissance movement. The architects cherishing the classical conception of art eagerly adopted the teachings coming from France. They had strongly combated the adherents of the Neo-Gothic style, and after Classicism had died out, declared the Italian Renaissance to stand far nearer to the social conditions and the spirit of the new times, than the mediaeval world of form belonging to a much earlier epoch. By them the Italian (prepalladian) Renaissance was esteemed as the sole contemporary artistic ideal.

The separation in the aims of the leading architects thereby

produced had in the second half of the 19 th century as a result, a permanent complication, that distinguishes the architecture of that century from that of all other times. Its evolution was most strongly influenced by that of the intellectual sciences. In these after the middle of the century and under the influence of sagacious men commenced a thorough advance. Instead of the subjective philosophy of the world and its phenomena, partly derived from feeling and from a dreamy, poetic temper, appeared a severe objective investigation clarified by more acute criticism. The universality previously striven for was replaced by a specialization, that sought to refine the m methods by concentration on closely limited fields, and to make the individual dominant over its separate parts. The natural sciences (under the lead of Liebig, Darwin, Mayer etc.) obtained entirely new and highly important acquisitions. Also in the religious-philosophical domain (only Strauss and Feuerbach are mentioned), the criticism of the materials became dominant; history (after Ranke's precedence) devoted itself to thorough studies of the sources. In literature this critical conception likewise attained supremacy, and no less in the science of art. This saw its chief problem in the investigation of the historical past. Besides larger comprehensive works * appeared a series of important monographs from the domain of architecture. The richer the material, that the historian of art gradually collected from the countries of all monarchs, t the more rapidly were filled the museums and collections of m models, now founded in great number. Like the products of the entire art, like the composition of mankind itself, for whose racial families they should form a reflection, varied expositions were established in them.

** Among the works appearing in Germany the most prominent p place is taken by Lübke's Geschichte der Architektur(History of Architecture; 1858) and Kugler's Geschichte der Baukunst. (History of Architecture; 1859).*

The architects educated at the architectural academies, where architecture was treated purely as a science, by travel, by the study of publications on the history of art, and of art t treasures examined in the museums, now endeavored -- they followed therein only a strict requirement of their time -- first

of all for historical truth, for complete purity of style; they saw the highest aim in the most thorough knowledge possible of the historical style and of its detail forms. The freely creating art imagination was supplanted by the condition in t the history of the style, always looking backward like historical investigation. Since the art critic also took the questions of the purpose and worth of the different art styles for architectural creations in an objective way intc the realm of his investigations, corresponding to the historical method of thought of the time, the conception soon became general, that the Romantic architecture formed the most striking form of expression for Christian church and national ideas, the oriental, and particularly the Moorish, that for the Israelite faith, etc. Thus an eclecticism entered into architectural creation, that in its results became fatal to obtaining an architecture full of character, and must lead to a chaos of styles,, such as has not passed away. Not only the mediaeval styles and the Renaissance, but also the Barocco, the Rococo, and the Classicism, even to the Biedermeier style, came in the series. The "Neo-Renaissance" thus produced also comprised in a briader sense a renaissance of all historical styles. Many owners and architects then pleased themselves by erecting in Germany an English-Gothic villa, a Chinese garden house etc.; in the internal arrangements the style finally varied with the fashion. Men not seldom judged the skill of the architect by his mastery of all possible styles. In not a few cases attempts were even m made to fuse together into a new style entirely dissimilar form elements, such as those of classical and of mediaeval architecture. Thus originated deformities, if these experiments were not conducted with a refined artistic feeling, that in a rude way proved the artistic restlessness of their creators. In the employing and purchasing "art-loving" public gradually o occurred a scarcely credible lack of restraint. For the internal architecture and the art industries were established all conceivable requirements. The consequence thereof was a hasty, purely external and frequently misunderstood inclination toward the most striking characteristics of the art style, and a combination of these in the house utensils in an arrangement in an arrangement and abundance, in which frequently could no

longer be a suggestion of organic development. This mimicking led to imitations and deceptions of every kind. Substantial technics were also lost and sound taste, which was even worse.

This dangerous outgrowth of the conditions in the architecture of the second half of the 19 th century particularly appeared in Germany and indeed in the art of the wide masses of the people, since there all unified culture of taste and leadership were wanting. As we shall see later, France had retained a more assured foundation by a stronger adherence to its traditions, and by a strong emphasizing of suitability in plan and architectural treatment of its buildings. But also concerning the architecture of Germany cannot be expressed a final decision in the preceding respects. In the view of its shady side, we must not overlook the great works of a stately number of architects of high aims, during a period characterized by an extremely rich architectural activity. We have observed t the fact in the entire course of the evolution of architecture, that every time, considered by itself, was at least tolerant of the directly preceding art style overcome by itself. Our present time certainly makes no exception in that respect. We now stand too near to the second half of the 19 th century, to obtain an assured objective decision on its architecture. But we shall come near to a just determination, if we consider it in the light of its time. And this was severely historical a and purely scientific. In its spirit certain important masters have truly accomplished great things. They have created in numerous buildings excellent solutions of the ground plans, s splendid compositions of interiors, and reached a refinement of forms, such as ever show their development, with a high flexibility. Their works are often so faithful in their imitation, that they might be regarded as genuine. There may be recalled here only the extension of the great mediaeval cathedrals, particularly that of Cologne cathedral, and the activity of the recently founded masons' lodges (volume 2, page 73), w who penetrated deeply into the nature of mediaeval art. On t the other hand, certain masters have honestly and successfully endeavored to bring into use the native Renaissance, thus to obtain a permanent art standing nearer the modern times. Oth-

Others employed for their buildings freely designed motives, so that they regarded them as entirely new. Indeed by these creations the general appearance of architecture in the last half of the 19 th century was not determined. This presents in a far greater measure the products of an antiquarian conception of art, based on the inclination toward continued reanimations, the parts of a dead world again brought to life, which like foreign bodies are intruded into the natural course of evolution of architecture. We shall not recognize such phenomena as the fruits of the living tree of the art of a country. And therefore they lose in interest for the consideration in art history in a work, that in the first line regards the side of the historical evolution of architecture. It will suffice for our further treatment, if we follow the paths struck out in the different countries by the most prominent masters, and refer to their most important architectural creations.

Evolution in the different Countries and the Monuments.

3.5 I. Germany, Austria and Switzerland.

In Germany already at that time, when Neo-Classicism was in its highest bloom, the Neo-Romantic appeared in architecture, and it was just the most celebrated master of the former, the talented Friedrich Schinkel (page 282), who created the first important Neo-Gothic architectural work, the Werder church in Berlin (1825). It is a one story plan, consisting of five bays with a narrow outer aisle and galleries between the buttresses, which are drawn inward, a polygonal choir and two front towers terminating in platforms. * Likewise the further works of the Neo-Romantic in Berlin and its immediate vicinity have architects as their creators, which we have mentioned among t the principal masters of Classicism. There are in Berlin the S. Matthias church, erected by Stüler (page 285) as a Gothic hall church in 1845-1846, a brick structure with tower on the principal axis, and the extensive Romanesque central building of the church of S. Markus (begun 1848) by the same master, a and in general recalling the palace chapel at Aix-la-Chapelle, and further in Sansouci the harmonious Friedens church, built (1803-1805; page 285) by Ludwig Persius in the style of the Early Christian basilica. The very busy Stüler also appeared an as adherent of the Neo-Renaissance. He was (after 1848)

the architect of the palace in Schwerin, begun in 1844 by the court architect there, George Ad. Demmler, which in the form of its plan and architecture, particularly also in the animated outlines had as a model the French chateaus of the early Renaissance.(Fig. 266).

** Schinkel's inclination toward Gothic, with the clarity of his thinking, indeed did not have its origin in the enthusiasm of that time for the "Romantic", but rather first in respect to the monumental treatment of the vaults, and perhaps to the picturesque effect of the style. But his knowledge of Gothic was not derived exclusively from German, but likewise from English sources. Indeed corresponding to the stage of art research at that time, he did not penetrate deeply into the nature of Gothic, but remained attached to a purely external conception.*

An important centre of Neo-Romantic architecture became Munich, the Bavarian capital. There Klenze (page 286) already in the year 1837 erected at the particular desire of the king Ludwig I, near the Royal palace the three aisled Allerheiligen c court church in the Romanesque basilican style. Gärtner (page 288) was engaged on it, and erected the Ludwigs church (1829-
319 1843) as a cross basilica with portico and two front towers in a still quite immature style, in mixed German and Italian Romanesque forms, into which even Gothic forms are interwoven. The elongated Library (1832-1842), externally very tasteless, has a facade composed of Tuscan forms of the Romanesque and the early Renaissance styles, but has a beautiful stairway hall, still chiefly Classistic in design. At the Commanders' portico (Feldherrenhalle) (1841-1844) Gärtner attempted an unfortunate copy of the Loggia dei Lanzi at Florence for the Munich Place. Jos. Daniel Ohlmüller (1791-1839) penetrated much deeper into the nature of mediaeval art. His chateau of Hohenschwangau is a very charming creation with all naievety, which combines Romanesque and Gothic motives. The church of Mariahilf in the meadow near Munich (after 1831), he erected as a h hall structure of brick with cut stone details. The tower rising above the facade already has a tracery spire. After the early death of Ohlmüller, Geogre Fried. Ziebland (1800-1873) completed the building. From him also comes the church of S.